THE BRITISH PALLADIUM: OR, *Annual Miſcellany* OF LITERATURE and SCIENCE: For the YEAR 1773.

In TWO PARTS.

The *Firſt* containing *new*, *general*, and *ſelect*, SUBJECTS: With an *Alphabetical* CHRONICLE (Number II.) of remarkable Events.

The *Second* comprehending *Anſwers* to former *Enquiries*: With a *Variety* of *new* and *entertaining* Things propoſed.

Of Uſe for Gentlemen and Ladies, Youth at School, and Navigators.

Serving for *Land* and *Sea*.

The *Twenty-fifth* Number publiſhed.

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Alſo *The Seaman's Guide, or Key to the Nautical Ephemerides*, for keeping a Reckoning of *Longitude*, from Obſervation, on Board his Majeſty's Ships at Sea, *as far as it is practicable*. (According to the *Method* borrowed from the *French* by our Reverend *Conductor* of the Longitude).

By the AUTHOR of the *Improved* ROYAL ASTRONOMER AND NAVIGATOR.

As *Heirs* to *Worth* their *Honours* ſtill encreaſe,
Through a long *Lineage* of diſtinguiſh'd Race:
Palladiums of their antient *Title* boaſt;
And the *laſt Heir* aſpires to merit moſt.

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INTRODUCTION.

SIR, *To the* PALLADIUM-AUTHOR.

IF you think the following *verſified Remarks* on a *wonderful Subject*, annually publiſhed in a *wonderful Book*, by an *eminent Author*, and his Aſſiſtant *Projectors* and *Operators*, (without any *Proofs* given of its *Utility*,) will afford any Satisfaction to the *Public*, in opening the Eyes of the *Blind* and *Miſled*, I beg you will *introduce* the *ſame* into your uſeful *Palladium*.

I am, with Regard to Truth, Sir,
Spithead, *Your moſt obedient humble Servant,*
July 25, 1772. *A Practical* SEA-OFFICER,
On Board the Trial; *but formerly belonging to the* Greenwich.

Quale per incertam lunam ſub luce maligna
Eſt iter in ſylvis. — Virg. Æn. VI. v. 270.

The LONGITUDE. *A* SONG. With *explanatory Notes.*
Tune, *A Cobler there was, &c.* *By a* SEA-OFFICER,

1. WHILE *Duntborne* ſo clearly the *Problem*[*] has ſolv'd,
The dark *Miſts* of Error *Pretenders* involv'd;
Who diſtanc'd by *Duntborne*, they have the *Plate* loſt;
Like *Whiſton* and *Ditton* — on wrong Side the Poſt!
Down, down, Greenwich-hill, up and down.

2. *Lunar* Places *twelve Hundred and twenty*,[†] we're told,
Are *next* to be publiſh'd — and then to be ſold;
With *Bradley*'s bright *Tables*,[‡] *Reſults* to be ſeen;
But, *proving* the *Diſtances*, Nothing they mean.

3. As *Harriſon's Watch* by the *Stars* has been try'd,
Which, for not going true, is by them ſet aſide;
So the *Longitude-Book*[||] by the Sun, Moon, and Stars,
Should be prov'd — that their *Diſtances*[§] prove not a Farce.

4. Our *Longitude-Chief*, fam'd for ſplitting a Hair,
Suſpects his own *Scheme*,[¶] yet rejects *Watch* and *Chair*;
Impartially, elſe, he'd by fair *Trial* ſhew,
That the *Diſtances*[⊥] publiſh'd are *ſeen* to be true.

5. *Impos'd* on the Buyer, his *Longitude-Book*
The *Navy* muſt guide, ſhould the *Guide* have miſtook;
But why ſhould our *Seamen* be led by ſuch *Schemes*,[**]
Before they're examin'd, — and pay for as Dreams?

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[*] *Clearing, at once, the* Parallax *and* Refraction *of the Moon's Diſtance from the Sun or Star.* [†] *See the* Nautical Ephemeris, *End of the Preface,* 1773.

[‡] *A* pretended *Improvement, in MS, on* Mayer's *firſt Tables*; *though Dr.* Bradley *was only an able* Obſerver, *and never profeſſed himſelf to be a* Mathematician, *like* Mayer *or his able Predeceſſor, Dr.* Halley; *who called him a* Hair-ſplitter, *for taking minuter Obſervations than* Inſtruments *or Practice would allow, in* Halley's *Opinion. He is ſaid to have been aſſiſted in his Rules of Computation and Account of the Motion of Light, and the Earth in her Orbit, by* Simpſon, *of* Woolwich, *his Neighbour.*

[||] *The* Nautical Ephemeris. [§] *Moon from the Sun, or Star, computed.*

[¶] *The lunar Scheme*; *approved by the* Oxford *and* Cambridge *Profeſſors, never at Sea, ſince the* Death *of Science.*

[⊥] *Compared with thoſe obſerved, reduced to the true, for the* ſame *Times, as printed.*

[**] *Who depend on the* old Way *of keeping a Ship's Reckoning at Sea. Though the* new Method, *by the* Nautical Ephemeris, *is uſed for a* puzzling *Amuſement by* Sea-Officers.

6. The *Longitude-Wages*, for *Trials* allow'd,
Should pay for *Things needful*, for that *End* beſtow'd;
If Officers *Wages* to theſe be apply'd,
For a *Pilot* and *Watch* they may pay for beſide.
7. A *Quadrant*, divided exact to a *Third*,[*]
For the Longitude Scheme, might be purchas'd of *B-rd*; [||||]
A *Sextant* and *Tube*, with a *Book* to explain;
That *Others by Longitude-Projects may gain.*
8. *Aſſiſtant-Computers*, ſuppoſe one, two, three,[†]
With their *Penſions* [||] beſtow'd, for a Longitude-*Fee*;
Of the *Chief* and *Subordinates*, [‡] is one ſo wiſe,
Who can ſhew that their Numbers agree with the Skies?
9. The *Nearneſs* of *Inſtruments* ne'er did appear —
Nor the *Truth* of obſerving — how *wide* or how *near*;
Theſe Cauſes, *Mayer*'s Tables, large *Error* compound;
And Practice *the* The'ry *will ever confound.*
10. The *Cups* and the *Balls* for a While may ſurpriſe!
Till the *Conjurer*'s Art is found out by our Eyes;
His *magical* Wand we no longer will own,
When his *Maſk* is ſtripp'd off, and his *Magic* is blown.
11. Sage *Halley* [§] found out what a *Frenchman* [¶] improv'd,
And then *Witch-l* wedded what others had lov'd;
Dunthorne, for Bye-Blow, exerted his Skill,
And conquer'd the LADY, and gain'd her *good Will.*
12. To ſeveral *Sweethearts* ſhe now fell a Prey;
Some had her by *Land*, and ſome had her by *Sea:*
She with *Mayer*, *Bliſs*, and *Bradley*,[⸸] intrigu'd, and with *More*;
Some ſince *Witch-l* courted her, and ſome before.
13. To a dignify'd BOARD, for Protection, ſhe fled,
And paſs'd for a *Maid* — with a pure *Maidenhead*;
A *little Man* took her his *Fortune* to make,
Who is fond of her Charms for the *dear Profit*'s Sake!
14. A *Dutchman*, a *Welchman*, with *Servants*[**] to boot,
Beguil'd her — to taſte of the *Longitude-Fruit*;
And now her *Embraces* quite common are grown,
She's a *Caſt-off*, and *Ch-at*, and a *Proſt-tute* known.

Sea-Officers. *This* Method *was firſt practiſed, and then rejected, by the* French, *as* inſufficient; *from whom the* Engliſh *copied it*, (like other French Faſhions,) *that the Purchaſe of* Mayer's *Tables, for* 3000*l.* (a Secret between him and Dr. Bradley,) *might not be in* vain. *The* French *would not buy them. Mrs.* Stevens's *Medicine coſt more,* (viz. 10000*l.*) *but came to Nothing.*

[*] *To ſplit an imperceptible* Hair, *or* Spider's Thread.

[||||] *An* accurate Inſtrument-Maker.

[†] *If the* ſeparate *Computers do not ſee eachother's* Cards, *the Examiner, or Third, knows how the* Game *goes between them and the* principal *Projector.*

[||] *Sixty Pounds a Year each,* Salary.

[‡] *Mr.* Maſon *gives a* Reaſon *for the extreme Differences of* Right Aſcenſions *of the* Stars: *Who carried abroad more* Abilities *than he left behind him; and brought more Home than he found at his Return.*

[§] *A truly eminent and great* Aſtronomer *and* Mathematician, *and who has been diſtinguiſhed from the mere* Obſervators, *or* Star-gazers, *ſince his Time.*

[¶] De la Caille, *an eminent and able* French *Aſtronomer and Mathematician.*

[⸸] *It is no* Detraction *to diſtinguiſh between ſuperior and inferior* Artiſts, *above and below. Such is the* Difference *between mere* Obſervers *and* mathematical Aſtronomers, *or between firſt-rate heavenly* Guides, *and cracked-brained* Enthuſiaſts *and* Methodiſts.

[**] *Aſſiſtant-Quacks.*

A NEW GUIDE to the YEAR 1773.

PART I.

To find the Day of the Month from the Day of the Week, and Day of the Week from the Month-Day.

Againſt each Month of the Year, to the Right-hand, ſtand the Seven Week-Days, above which ſtand all the Month-Days in that Month, anſwering to each Week-Day.

Contrarily. Under any Month-Day ſtands the Week-Day againſt that Month, at the Angle of Meeting.

MONTH DAYS and WEEK DAYS.

	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
MONTHS of the YEAR.	29	30	31				
January. October.	Fr	Sa	Su	Mo	Tu	We	Th
February. March. November.	Mo	Tu	We	Th	Fr	Sa	Su
April. July.	Th	Fr	Sa	Su	Mo	Tu	We
May.	Sa	Su	Mo	Tu	We	Th	Fr
June.	Tu	We	Th	Fr	Sa	Su	Mo
Auguſt.	Su	Mo	Tu	We	Th	Fr	Sa
September. December.	We	Th	Fr	Sa	Su	Mo	Tu

For *Conſtruction* of the above Table, *ſee P.* 2, *Palladium*, 1765.

EXAMPLE I. *To find the Day of the Month anſwering to the ſecond Saturday in April,* 1773.

To the Right-hand of *April* you find Sa, or *Saturday*; directly above which, in the Columns among the Month-Days, ſtand 3, 10, 17, 24, (and 31, excluded,) anſwering to all the *Saturdays* in *April:* Therefore the third *Saturday* is the 10th Day, required. So for other like Caſes.

EXAMPLE II. *To find the Day of the Week on which the 24th of* June, *or* Midſummer-day, *happens*, 1773.

Under 24, the Month-Day, againſt *June*, at the Angle where the *upper* and *Side* Columns meet, ſtands Th, or *Thurſday*, required.

NOTES for 1773.

Dom. Let. N.S.	C
————— O. S.	F
Golden Number	7
Epact (or ☽'s Age at Year's Beginning)	6
Sun's Cycle	18
Roman Indiction	6
Era Jul. Pe. *Ja.*	6486
–Olymp^{ds} *Jul.*	2549
-Found. Ro. *Ap.*	2526
–Nabonaſſar *Fe.*	2520
– Hegira *July*	1152
Greg. Era *Oct.*	191

Yrs completed at the Mths, O.S. Olymp. 2 Yrs more than by *de la Lande**. See *Axioms & Rules*, p. 351, *R. Aſtr.*

Moveable FEASTS.

Feb.	7.	*Septuageſ.*
	24.	*Aſh-Wed.*
	28.	1 *Sund. Lent*
Apr.	11.	*Eaſt: Sund.*
May	16.	*Rog. Sund.*
	20.	*Aſcenſion*
	30.	*Whitſunday*
June	6.	*Trin. Sund.*
Nov.	28.	*Advent Sun.*

Ember-Days.

Mar.	3,	5,	6.
Jun.	2,	4,	5.
Sep.	15,	17,	18.
Dec.	15,	17,	18.

*The Reſt the ſame w^{h} his Cor^{n} of former Acc^{ts} in *Con. des Tems.*

SUN riſes.

Mths.	1ſt h	1ſt m	11th h	11th m	21ſt h	21ſt m
Jan.	8	5	7	58	7	45
Feb.	7	22	7	6	6	30
Mar.	6	32	6	12	5	52
April	5	31	5	11	4	53
May	4	35	4	20	4	4
June	3	51	3	45	3	43
July	3	46	3	54	4	4
Aug.	4	20	4	36	4	54
Sep.	5	15	5	32	5	54
Oct.	6	13	6	33	6	33
Nov.	7	12	7	30	7	45
Dec.	7	58	8	6	8	8

Examples.

Againſt *May* the Sun riſes

	h	m
1ſt	4	35
11th	4	20
21ſt	4	4

Dif. 15^{m} in 24 Hours, & 16^{m} *leſs* for 10Ds. or 1$^{m}\frac{1}{2}$ a Day *nearly*.

N. B. Sun-riſing ſub. from 12^{h} gives Sun-ſetting.

N. B. The *complete* Years of the ſeveral Æras end at the *Month*, then the *current* Years take Place; each for a Year following.

Aſtronomical

Aſtronomical MOONS *for Greenwich-Obſervatory*, 1773.

	Full Moon.			Laſt Quarter.			New Moon.			Firſt Quarter.		
Mths.	d	h	m	d	h	m	d	h	m	d	h	m
Jan.	8	9	26 A	15	10	9 A	22	9	18 A	30	7	54 A
Feb.	7	11	9 M	14	6	7 M	21	0	34 A	Mar. 1	4	30 A
Mar.	8	10	56 A	15	2	30 A	23	5	21 M	31	9	58 M
Apr.	7	8	45 M	14	0	4 M	21	10	32 A	29	11	30 A
May	6	5	2 M	13	11	29 A	21	2	44 A	29	9	25 M
June	5	0	16 M	12	1	2 M	20	5	8 M	27	4	19 A
July	4	7	36 M	11	4	41 A	19	5	46 A	26	9	37 A
Aug.	2	4	20 A	9	22	7 A	18	5	12 M	25	2	29 M
Sep.	1	3	42 M	9	4	21 A	16	3	50 A	23	8	23 M
	30	6	9 A									
Oct.	30	11	25 A	8	10	23 A	16	2	0 A	22	4	43 A
Nov.	29	6	11 M	7	3	10 A	14	11	58 A	21	4	32 A
Dec.	29	1	1 M	7	5	47 M	13	10	4 A	20	8	12 A

N. B. M ſtands for *Morning* and A for *Afternoon*.

Add to the Month-day for the Moon's Age.		New ☽.	Sun and Moon's Place at New Moon.		Sun enters Signs.		*Sub.* and *add* from and to ☽'s Southing for her Rising & Setting. ☽ Place.		Arc *∓.	
	No.	d	s	o		d	s	o	h	m
Jan.	7	22	10	3	♒	19	3	0	8	30
Feb.	9	21	11	3	♓	18	4	2	8	15
Mar.	7	23	0	3	♈	20	5	1	7	15
Apr.	8	21	1	2	♉	19	6	0	6	15
May	9	21	2	1	♊	20	7	11	5	15
June	10	20	2	29	♋	21	8	10	4	15
July	10	19	3	27	♌	22	9	0	4	0
Aug.	12	18	4	26	♍	22	9	20	4	15
Sep.	13	16	5	24	♎	22	10	29	5	15
Oct.	14	16	6	23	♏	23	0	0	6	15
Nov.	15	14	7	22	♐	21	0	29	7	15
Dec.	16	13	8	22	♑	21	1	28	8	15

Here the Day of N. ☽ and No. added for the following Month make up the Days in the preſent Month.

Exam. May N. ☽ 21, & June 10, added =31Ds. in May, the preſent Month. N. ☽ No. 14 & De. 16 added = 30 Ds. in Nov.

To find Moon's Age.

Ex. I. *June* 13
Add No. 10
Moon's Age 23 [Days.

Ex. II. *Sep.* 22
Add No. 13
35
Abate 29
Moon's Age 6

☞ When ☽ Age is above 29 or 30 Ds. ſub. 29 or 30, as 1. & 2d Cols (agt Mth) are 29 or 30.

To find Sun's Place.

Sub. or add Deg. for Ds. bef. or aft. ☉ enters a Sn. for his Place. *Required Sun's Place for Aug.* 15, 1773.

18 *Au.* ☉'s Pl. 4^s 26^o
−3 Ds. & Degs. — 3
15 *Au.* ☉'s Pl. 4 23
at Noon.

Req. ☽ *Pl. Feb.* 18.
☽'s Age 27^d
Bef. N — $3 \times 13^o\frac{1}{6}$
= — 1^s 9^o
☽'s Pl. at N. ☽. } 11 3
☽ Pl. *Feb.* 18, Noon } 9 24
A *near* Comput. only.

To find ☽'s Riſing & Setting, Feb. 18, 1773.

☽ m. Pl. fr. ab. 0^s 24^o
Arc * correſ ∓ 4^h 21
☽'s So. 18th D. 9 m 25
☽ riſes 18^d 5 m 4
Sets . . . 2 a 46

N.B. Take the * Arc ∓ neareſt or proport. to ☽'s Place above.

To find the *Tides* at *London.*

Rule. Add 2^h 30^m to Time of ☽'s Southg (fr. the *Table* of her Southing) for Time of High Water *required.*

Ex. Mar. 20, 1773, ☽ ſouths, by *Tab.* follows
20^d $9^h m$ 55^m
Add 2 30
H.W. 0 a 25
Add 5 10
L.W. 5^a 31 at *Lond.* Bridge.

N.B. Time of H. & L. W. at *Lond.* ſerves for Boats and Veſſels bound down & up the R. or fr. ab. & below Bridge, to *Lond.* reſpectly.

Gen. Rule. Add the T. of H.W. at N. and Full ☽ for any *Place*, accorg to a *Tide-Tab.* to the Time of ☽'s Southing, that Day, for H.W. at that Place.

N. B. *The Feſtival marked* * *is preceded by a Vigil or Faſt. If any of the Feaſt-days fall on a* Monday, *the Vigil or Faſt-day muſt be kept on the* Saturday *before, and not on the* Sunday, *which is the greateſt of Feſtivals.*

The Days having this Mark, †, *againſt them are Holidays obſerved at the* Exchequer, Stamp-Office, Exciſe-Office, Cuſtom-Houſe, Bank, Eaſt-India, *and* South-ſea Houſe.

☞ *At the* Cuſtom-Houſe *there is no Holiday on* Valentine, St. David, Shrove-Tueſday, Eaſter-Wedneſday, St. Swithin, Lammas-day; Fire of London, *or* Holy-Rood.

†‡† *The Offices are mentioned* ‘All but ſuch and ſuch,’ *after* †, *where no Holidays are kept, when they are kept in all the other Offices.*

MEMORANDUMS *for the* YEAR.

JANUARY, XXXI DAYS.

1 Circumciſion. †
3 2 *Sunday after Chriſtmas.*
4 Sir Iſaac Newton b. 1643, N.S.
6 Epiphany, or Twelfth-day. †
All but South-ſea Houſe.
8 Lucian.
10 1 *Sunday after Epiphany.*
13 Hilary Cam. Term begins.
14 Oxford Term begins.
15 Exchequer opens.
17 2 *Sun. after Epiph.* Old 12th-day.
18 Priſca. Q. Cha. Birth-day kept. †
Ruffians at Portſmouth, on Friday, 1771.
20 Fabian. 1 Return.
21 Agnes.
22 Vincent.
23 Hilary Term begins.
24 3 *Sunday after Epiphany.*
25 Converſion of St. Paul. †
27 2 Return.
30 K. Charles I. beheaded 1648-9, O. S. 12 Minutes paſt One. †
31 4 *Sunday after Epiphany.*

FEBRUARY, XXVIII DAYS.

2 Purific. B. V. or Candlemas. †
3 Biſhop Blaize. 3 Return.
5 Agatha.
7 *Septuageſima Sunday.*
9 4 Return.
10 Dies ſcholaſtica at Oxford.
12 Hilary Term ends.
13 Old Candlemas-day.
14 *Sexageſima Sunday.*
Valentine. † All but Stamp, Cuſtom, and South-ſea Houſe.
21 *Quinquageſima, or Shrove-Sund.*
22 Shrove-Monday.
23 Shrove-Tueſday. †
All but the Cuſtom-Houſe.
24 St. Matthias.* †
Aſh-Wed. 1ſt Day in Lent. †
25 Cambridge Commencement for B. A. Day after Aſh-Wedneſ.
28 1 *Sunday in Lent.*
Hare-hunting goes out.

MARCH, XXXI DAYS.

1 St. David. Anniverſary-Meeting of the Welch Society, who wear a Leek on this Day in Memory of a famous Victory gained over the Saxons. † All but the Stamp and Cuſtom-H.
2 Chad. B.
3, 5, 6, Ember-days.
7 2 *Sunday in Lent.* Perpet. Maurit.
12 Gregory Mart.
14 3 *Sunday in Lent.*
17 St. Patrick, Biſhop of Ireland.
18 Edward, K. of the W. Saxons.
19 Joſeph.
20 Cuthbert. Equal Day and Night.
21 4 *Sunday in Lent, or Midlent-Su.* St. Benedict.
25 Annunciation of the V. Mary.*
Lady-Day, 1ſt Quarter-D. †
Cambridge latter Act, Thurſday after the 4th Sunday in Lent.
28 5 *Sunday in Lent.*
31 Ruffians at Portſmouth, on Friday, 1769.
Sir I. Newton died, 1727, N.S.

APRIL, XXX DAYS.

1 Fool's-Cap Day; Hatton-Harry, Exeter Jack, Leonard Libel, MrOFagon, Greenovicenſis, &c.
2 Cam. Ter. ends, Fr. bef. Palm-Su.
3 Richard, B. of Chicheſter.
Ca. & Oxf. T. end, Sat. b. Palm-S.
4 *Palm-Sund.* St. Ambroſe.
5 Old Lady-day.
8 Maundy-Thurſday.
9 Good-Friday. †

11 EASTER-SUNDAY.
12 Eaſter-Monday. †
13 Eaſter-Tueſday. †
14 Eaſter-Wed.† All but Cuſtom-h.
15 Sun and Clocks together.
18 1 *Sund. after Eaſter. Low-Sund.*
19 Alphege.
21 Oxford and Camb. Terms begin Wedneſday after Low-Sunday.
23 St. George. †
25 2 *Sunday after Eaſter.* St. Mark. †
27 Victory of Culloden.
28 Eaſter Term begins.

MAY, XXXI DAYS.

1 St. Philip and St. James. †
2 3 *Sunday after Eaſter.*
3 Invention of the Croſs.
4 1 Return.
6 St. John ante Port. Lat.
9 4 *Sunday after Eaſter.*
10 2 Return.
Weſtminſt. Election, Day after 4th Sun. after Eaſter.
12 Old May-day.
16 *Rogation-Sunday.*
17 3 Ret. 17, 18, 19, Rogation-days.
19 Dunſtan. Q. Charlotte b. 1744.
20 Aſcenſion-day, or Holy Thurſ. † All but the South-ſea Houſe.
21 4 Return.
22 Princeſs Elizabeth born 1770.
23 *Sun. aft. Aſcenſion, or 6 S. af. Eaſt.*
24 Term ends.
26 Auguſtine, 1ſt Abp. of Cant.
No Night, but all Twilight.
27 Venerable Bede.
Oxf. Ter. ends, Th. bef. Whit-Su.
29 King Charles II.'s Nativity and Reſt. after 12 Yrs Exile.
30 WHIT-SUNDAY.
31 Whit-Monday. †

JUNE, XXX DAYS.

1 Whit-Tueſday. † Nicomedes.
2, 4, 5, Ember-days.
Whit-Wedneſday. † All but the Cuſtom-houſe.
4 King George III. born 1738. †
5 Boniface.
6 *Trinity-Sunday.*
7 1 Return.
9 Oxford Term begins.
10 Princeſs Amelia b. 1711. † All but Excheq. and Cuſtom-houſe.
11 St. Barnabas. † Trin. Ter. begins.
13 1 *Sunday after Trinity.*
14 2 Return.
16 Sun and Clocks together.
17 St. Alban.
20 2 *Sunday after Trinity.*
Tranſl. of Edw. K. W. Saxons.
21 3 Return.
22 Longeſt Day.
24 ST. JOHN BAPTIST. † 2d Quarter-day.
27 3 *Sun. after Trin.*
28 4 Return.
29 St. Peter and Paul. †
30 Buck-hunting comes in & continues till Holy-rood. Exeter & Wadham Col. Elect. at Oxf.

JULY, XXXI DAYS.

2 Viſitation of the B. V. Mary.
3 Dies Comitiorum.
4 4 *Sunday after Trinity.*
Tranſlat. of St. Martin, Biſhop.
6 Cambridge Commencement for B. A. 1ſt Tueſday in July.
7 Tho. à Becket, Church Tyrant.
9 Cambridge Term ends.
11 5 *Sunday after Trinity.*
13 Oxford Act, 7 Days from Cambridge Commencement.
15 St. Swithin. † All but Stamp, Cuſtom, and South-ſea Houſe.
17 Oxford Term ends.
18 6 *Sunday after Trinity.*
20 Margaret, Virgin and Martyr.
22 Mary Magdalen.
Q. of Denmark born 1751. †
24 Magdalen College Election.
25 7 *Sun. after Trin.* St. James.* †
26 Ann, Mother of the B. V. Mary.
27 Portſmouth-Dock fired at 4 in the Morn. 1770, by an Eroſtratus ſeeking his Reward; like Brittain, who received his, at Briſtol, in May, 1772, after making diligent Search to find it.
30 Dog-days begin. Canicula riſes with the Sun.

AUGUST, XXXI DAYS.

1 8 *Sun. after Trin.* Lammas-day. †
4 Crown-Point in America taken by General Amherſt, 1759.
6 Transfiguration.
7 Name of Jeſus.
8 9 *Sunday after Trinity.*
10 St. Laurence.
11 Princeſs of Brunſwic b. 1737. † All but Cuſt. and S. S. H.

12 Prince of Wales born 1762. †
15 10 *Sunday after Trinity.* Aſſumption.
16 Bp. of Oſnaburgh b. 1763.
21 Athanaſius. Pr. Wm b. 1765.
22 11 *Sunday after Trinity.*
24 St. Bartholomew. †
28 St. Auguſtine.
29 12 *Sunday after Trinity.* Beheading of St. John Baptiſt.
30 Sun and Clocks together.

SEPTEMBER, XXX DAYS.

1 St. Giles.
2 London burnt, 1666, O. S. †
5 13 *Sunday after Trinity.*
7 Eunurchus.
8 Nativity of the B. V. Mary.
9 Dog-days end. Canis Major riſes with the Sun at 3 in the Morn.
12 14 *Sunday after Trinity.*
14 Holy-Croſs Day. † All but Sta. Cuſtom and South-ſea Houſe.
15, 17, 18, Ember-days.
17 Lambert B.
18 City of Quebec ſurrendered to General Townſhend, 1759. K. George I. and II. landed. † All but at the Cuſtom-houſe.
19 15 *Sunday after Trinity.*
21 St. Matthew. †
22 K. Geo. III. and Q. Charl. Cor. 1761. † Equal Day and Night.
26 16 *Sun. after Trin.* St. Cyprian.
28 Sheriffs of London ſworn.
29 St. Michael, third Quarter-day. † Hare-hunting comes in and laſts till the End of Feb. Princeſs Charlotte b. 1766.
30 St. Jerome.

OCTOBER, XXXI DAYS.

1 Remigius, Biſhop of Rhemes.
3 17 *Sunday after Trinity.*
6 St. Faith.
9 St. Dennis.
10 18 *Sun. after Trin.* Old Michaelmas-day. Oxford and Cambridge Terms begin.
13 Tranſl. of K. Edw. Confeſſor.
17 19 *S. af. Trin.* Etheldred V.
18 St. Luke. †
19 St. Frideſwide, a Feſtiv. at Court.
24 20 *Sun. after Trin.*
25 K. Geo. III. Acceſſ. †
26 St. Criſpin. Geo. III. proclaimed, 1760. † All but the Stamp, Exciſe, Cuſtom and S. S. H.
28 St. Simon and Jude. †
31 21 *Sunday after Trinity.*

NOVEMBER, XXX DAYS.

1 All Saints. †
2 All Souls. † All but the Stamp, Cuſtom and South-ſea Houſe.
3 1 Return. All-Souls Col. Elect.
4 K. William b. 1605, O. S.
5 Gun-Powder Treaſon, 1605. †
6 Mich. Ter. beg. Leonard [Libel].
7 22 *S. a. Tr.* D. Cumberlnd b. 1745.
8 Princeſs Auguſta Sophia b. 1768.
9 Ld-Mayor's-d. Lon. † All but Ex.
11 St. Martin.
12 2 Return.
13 Britius, Biſhop.
14 23 *Sunday after Trinity.*
15 Machutus.
17 Hugh Bp Lincoln. Anniv. Q. Eliz. Procl. † All but Cuſt. & S. S. H.
18 3 Return.
20 Edmund, King and Martyr.
21 24 *Sunday after Trinity.*
22 Cecilia. Old Martinmas-day.
23 St. Clement.
25 St. Catherine. 4 Return. D. of Glouceſter born 1743. † Baliol College Election Thurſday before St. Andrew.
28 *Advent Sunday.*
29 Michaelmas Term ends.
30 St. Andrew. †

DECEMBER, XXXI DAYS.

4 Barbary.
5 2 *Sunday in Advent.*
8 Conception of the B. V. M.
12 3 *Sunday in Advent.*
13 Lucy.
15, 17, 18, Ember-days.
16 O Sapientia. Camb. Term ends.
17 Oxford Term ends.
19 4 *Sunday in Advent.*
21 St. Thomas. †
22 Shorteſt Day.
23 Sun and Clocks together.
25 Christmas-Day, 4th Quarter-Day. Fox-hunting comes in and laſts till Lady-day.
26 1 *Sun. aft. Chriſt.* St. Stephen. †
27 St. John the Evangeliſt. †
28 Holy Innocents.
31 Silveſter, Biſhop of Rome.

A TABLE

A TABLE *of the* MOON'S *Southing, or Times when ſhe paſſes the Meridian of* Greenwich Obſervatory, *for the Year* 1773. *For the Uſe of Seamen, in finding the Time of Tides, &c.*

D.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
1	6a29	7a11	5a52	7a13	7a42	9a 4	9a37	11a17	Morn	0m10	1m12	1m24
2	7 10	8 0	6 42	8 5	8 35	10 0	10 37	Morn	0 35	0 55	1 58	2 12
3	7 54	8 51	7 32	8 56	9 27	11 0	11 37	0 11	1 22	1 40	2 45	3 1
4	8 39	9 42	8 24	9 48	10 23	Morn	Morn	1 2	2 7	2 26	3 32	3 46
5	9 28	10 35	9 17	10 43	11 21	0 0	0 36	1 51	2 51	3 11	4 21	4 33
6	10 17	11 28	10 10	11 39	Morn	1 1	1 31	2 37	3 36	3 58	5 8	5 21
7	11 8	Morn	11 5	Morn	0 20	2 0	2 24	3 22	4 21	4 45	5 55	6 8
8	Morn	0 21	11 58	0 36	1 20	2 57	3 14	4 7	5 8	5 33	6 44	6 54
9	0 1	1 15	Morn	1 34	2 22	3 49	4 0	4 50	5 55	6 22	7 33	7 [illegible]5
10	0 52	2 6	0 51	2 34	3 22	4 39	4 45	5 35	6 43	7 11	8 23	8 38
11	1 45	2 59	1 47	3 34	4 19	5 27	5 29	0 21	7 33	8 2	9 14	9 33
12	2 36	3 53	2 43	4 32	5 12	6 12	6 12	7 7	8 24	8 51	10 8	10 3[illegible]
13	3 27	4 47	3 40	5 29	6 2	6 54	6 54	7 55	9 14	9 43	11 2	11 3[illegible]
14	4 19	5 42	4 38	6 23	6 48	7 37	7 40	8 44	10 4	10 35	0a [illegible]	[illegible]a37
15	5 8	6 38	5 36	7 13	7 34	8 20	8 26	9 35	10 56	11 28	1 2	1 38
16	6 0	7 35	6 32	8 0	8 18	9 5	9 12	10 26	11 48	0a24	2 7	2 36
17	6 54	8 28	7 26	8 48	9 0	9 50	10 2	11 17	0a44	1 21	3 7	3 21
18	7 50	9 24	8 19	9 32	9 44	10 36	10 51	0a 7	1 35	2 23	4 6	4 22
19	8 46	10 14	9 8	10 16	10 26	11 23	11 42	1 1	2 31	3 22	5 1	5 10
20	9 43	11 5	9 55	10 58	11 11	0a13	0a35	1 51	3 28	4 22	5 53	5 57
21	10 39	11 52	10 41	11 42	11 56	1 3	1 23	2 44	4 26	5 20	6 40	6 4[illegible]
22	11 34	0a 8	11 26	0a27	0a45	1 53	2 13	3 36	5 24	6 15	7 26	7 23
23	0a24	1 23	0a 8	1 12	1 33	2 42	3 3	4 30	6 21	7 8	8 10	8 7
24	1 13	2 7	0 54	1 59	2 21	3 30	3 53	5 25	7 18	7 57	8 54	8 50
25	2 2	2 51	1 38	2 46	3 11	4 19	4 43	6 23	8 12	8 44	9 36	9 34
26	2 46	3 34	2 22	3 34	4 0	5 9	5 35	7 20	9 4	9 29	10 21	10 21
27	3 28	4 17	3 8	4 23	4 50	5 59	6 29	8 16	9 52	10 14	11 5	11 8
28	4 12	5 5	3 55	5 13	5 38	[illegible] 50	7 26	9 13	10 40	10 58	11 50	11 55
29	4 56		4 43	6 3	6 27	7 44	8 24	10 7	11 25	11 42	Morn	Morn
30	5 38		5 31	6 52	7 18	8 40	9 22	10 58	Morn	Morn	0 36	0 4[illegible]
31	6 24		6 21		8 9		10 20	11 48		0 27		1 3[illegible]

To find Time of H. Water, on any Day of the Month, at any given Place, for 1773.

Gen. Rule. *To the Time of the Moon's Southing* (fr. the above Tab.) *for that Day,* [illegible] *the Time of H. W. at N. and F. Moon in the given Place* (fr. Tide-Tab. p. 105, 106, P[illegible] 1765, or any other Tide-T.) *and the Sum, abating* 12, *when above* 12^h^ *will be T. of H.W.*

Example. To find the Time of High Water, at *London*, on *April* 1, 1773.

From the above Table, the Moon ſouths, at London, *on that Day,* 7^h^ 13^m^ Aft.
To which add the conſtant Time of High Water at New and Full, Lond. 2 30

Time of High Water, May 1, *at* London, 9 43 A. *req.*
Add for next Low Water, 5 30

Low Water at London, April 1, 1773, 3 13 Morn.

N. B. *Time of H. W. ſerves for Boats & Veſſels bound to Places below Bridge, fr.* Lond. *and Time of Low Water ſerves for Boats & Veſſels bound to Places above Bridge, fr.* Lond.

*** *Seamen may determine the Time of* H. & L. W. *at all Places by the foregoing* Gen. Rule, *fr. the above Tab. and the conſtant Time of H. W. at N. & F. M*[illegible] *each Place, fr. a Tide-Table. The above Table is alſo of Uſe for finding the Moon's* [illegible] *of Riſing and Setting, from her mean Place, and Semi-duration Arc for any* [illegible]

TABLE *of the Eclipſes of the firſt* SATELLITE *of* JUPITER, *for* Gr. Obſ. 1773. *For finding the* Difference of Longitude, *by Sea or Land.*

January.

♃ this Mth being ſo near ☉, the Eclip of his Sat. can not be ſeen. The * is plac'd againſt the viſible Eclipſes of the *firſt* Sat. of ♃ for *Greenwich*.

N.B. When the Time at the Ship is later than that at *Greenwich*, heLongitude s *Eaſt*; if oner, *Weſt* f *Greenw.*

February.

Jupiter's Satellites are inviſible this Month alſo, by being too near the Sun to be ſeen.

Jupiter's Satellites are alſo inviſible in *March*, by being too near the Sun to be ſeen.

March.

Though it may be ſeen that the ☽'s Paſſage over the Meridian and the Times of theſe Eclipſes in the *Naut. Ephem.* agree ſo near with thoſe in the *Con. des Tems*, reduced to the Merid. of *Greenwich*, that the *former* appear to be adjuſted by the *latter*.

	April.				May.				June.		
	Immerſ.				Immerſ.				Immerſ.		
D.	h	m	s	D.	h	m	s	D.	h	m	s
1	4	58	39	1	7	11	37	2	3	43	45
2	23	27	47	3	1	40	26	3	22	11	51
4	17	56	59	4	20	9	5	5	16	39	59
6	12	26	7	6	14	37	43	7	11	8	7
8	6	55	18	8	9	6	25	9	5	36	13
10	1	24	22	10	3	34	57	11	0	4	20
11	19	53	31	11	22	3	35	12	18	32	22
13	14	22	32	13	16	32	8	14	13	0	23
15	8	51	36	15	11	0	36	16	7	28	28
17	3	20	36	17	5	29	4	18	1	56	30
18	21	49	35	18	23	57	27	19	20	24	28
20	16	18	32	20	18	25	49	21	14*	52	33
22	10	47	31	22	12	54	12	23	9	20	36
24	5	16	25	24	7	22	34	25	3	48	37
25	23	45	11	26	1	50	50	26	22	16	41
27	18	14	7	27	20	19	5	28	16	44	50
29	12	42	54	29	14*	47	15	30	11	12	47
				31	9	15	31				

	July.				Auguſt.				Septemb.				October.				Novemb.				Decemb.		
	Immerſ.				Immerſ.				Immerſ.				Emerſions				Emerſions				Emerſions		
D.	h	m	s	D.	h	m	s	D.	h	m	s	D.	h	m	s	D.	h	m	s	D.	h	m	s
2	5	40	54	1	7	51	59	2	4	21	8	2	8*	48	33	1	11*	2	34	1	13	7	29
4	0	9	4	3	2	10	33	3	22	50	13	4	3	17	44	3	5	31	26	3	7*	35	42
5	18	37	11	4	20	39	10	5	17	19	21	5	21	46	57	5	0	0	7	5	2	3	53
7	13*	5	18	6	15*	7	46	7	11*	48	25	7	16*	16	12	6	18	28	56	6	20	32	4
9	7	33	31	8	9	36	30	9	6	17	41	9	10*	45	23	8	12*	57	40	8	15	0	14
11	2	1	40	10	4	5	6	11	0	46	43	11	5	14	31	10	7*	26	22	10	9*	28	23
12	20	29	49	11	22	33	53	12	19	16	4	12	23	43	37	12	1	54	53	12	3	56	26
14	14*	58	3	13	17	2	38	14	13*	45	13	14	18	12	47	13	20	23	36	13	22	24	36
16	9	26	12	15	11*	31	24	16	8*	14	30	16	12*	41	49	15	14	52	9	15	16	52	41
18	3	54	35	17	6	0	17	18	2	43	41	18	7*	10	57	17	9*	20	40	17	11*	20	45
19	22	22	53	19	0	29	7	19	21	12	55	20	1	40	4	19	3	49	2	19	5*	48	47
21	16	51	15	20	18	57	57	21	15*	42	9	21	20	8	57	20	22	17	28	21	0	16	58
23	11*	19	37	22	13*	26	52	23	10*	11	26	23	14*	37	57	22	16	45	56	22	18	45	4
25	5	47	57	24	7	55	53	25	4	40	33	25	9*	6	59	24	11*	14	11	24	13	13	4
27	0	16	25	26	2	24	53		Emerſions			27	3	35	56	26	5*	42	33	26	7*	41	9
28	18	44	55	27	20	53	54	27	1	20	55	28	23	4	50	28	0	10	57	28	2	9	17
30	13*	13	24	29	15*	22	57	28	19	50	12	30	16	33	42	29	18	39	13	29	20	37	26
				31	9*	52	4	30	14*	19	20									31	15	5	34

To find the Difference of Longitude from Greenwich Obſervatory.

Rule. The Difference of Time between any *Eclipſe* of *Jupiter*'s *firſt Satellite*, at *Greenwich*, happening as above, and the Time the ſame *Eclipſe* is obſerved to happen under a diſtant Meridian, being turned into *Degrees*, at Sea or Land, will be the Difference of Longitude between *Greenwich* and the Place of Obſervation.

Example. Eclipſe of *1ſt Satellite* of *Jupiter* at *Greenwich*, *May* 1^d 7^h 11^m 37^s
The ſame Eclipſe being obſerved at Sea, or a diſtant Port, *later*, 1 16 23 58

Hence, Di[illegible]n. to the *Eaſt* of *Greenw.* is 138° 5′ 15″, req. Dif. *later*, 9 12 21

Two

Two ECLIPSES *of the* SUN, *and Two of the* MOON, *for* 1773.

I. *Of the* SUN: Inviſible in *England*. *March* 23 d. Morning.

Conjunction $5^h\ 21^m\ 42^s$, and Moon's Latitude N. 42′ 34″. This Eclipſe is central and annular in Part of *Chineſe Tartary*, or 116° Eaſt Longitude, from *Ferro*, and 38° North Latitude. Sun riſes at *Paris* $5^h\ 53^m$ Morn. Eclipſed 0^d 4′ 45″. Eclipſe ends at *Paris* $6^h\ 3^m\ 30^s$ Morn.

By the *Nautical Ephemeris* the Conjunction is at $5^h\ 21^m$, in 2° 54′½ of ♈; Moon's Latitude 42′½ North. Said to be viſible in the *Eaſtern* Parts of *Europe* and ſeveral Parts of *Aſia, (but not at* Paris,) by Mr. *Maſkelyne* and his *Aſſiſtants* for executing the Office of *Aſtronomer Royal.*

II. *Of the* MOON: Inviſible in *England*. *April* 7^d Morning; but viſible in *America*. Oppoſition at $8^h\ 46^m\ 28^s$ Morning. Moon's Latitude N. 39′ 55″.

Beginning	7^h	18^m	40^s	*Green-*	By *Naut. Eph.*	7^h	18^m
Middle	8	40	52	*wich*	according to	8	$40\frac{1}{2}$
End	10	3	5	Time.	*De la Lande*'s	10	3
Digits eclipſed 8^d 18′ 30″ S.					Numbers.	Digits 8^o 19′ with *Allowance.*	

Quere, How theſe Times agree ſo *near*, and the Times of Lunations are ſo *far off*, thoſe in the *Connoiſſance des Tems*.

III. *Of the* SUN: Inviſible. *September* 16. Conjunction, at $3^h\ 49^m\ 32^s$, Afternoon, with 39′ 47″, South Latitude. This Eclipſe is *central* and *total* at Noon, a little to the Eaſt of *Magellen*, or about *Falkland-Iſland*, in 320° Longitude from *Ferro*, Eaſterly, and 37° South Latitude.

By the *Nautical Ephemeris*. Conjunction, $3^h\ 49^m$, in 24° 1′ ♍. Moon's Latitude S. 41′½ (with *Allowance)* at $4^h\ 20^m\ \frac{3}{4}$, will be *centrally* eclipſed on the *Meridian* in Latitude 45° S.

IV. *Of the* MOON: Partly viſible in *England*, *September* 30, Oppoſition $6^h\ 9^m\ 27^s$, Afternoon, with S. Latitude 34′ 37″.

Beginning	4^h	31^m	45^s	Afternoon,	By the	Beginning	4^h	$31^m\frac{1}{2}$
Middle	6	2	11	at	*Naut.*	Moon riſes	5	54
End	7	32	37	*Greenwich.*	*Eph.*	Middle	6	$2\frac{1}{2}$
Digits 8^d 12′ on the North Part.						End	7	$33\frac{1}{4}$
						Digits	8^d	17′

N. B. The Beginning, Middle, and End, (in the above Calculation, from the *Naut. Eph.) evidently* agree with the Numbers by M. *De la Lande*; though the Lunations in the *Nautical Ephemeris* and *Connoiſſance des Tems* ſo widely differ.

*** *This Year* Saturn's Ring *will diſappear. His Face is obſerved round.* Jupiter *neareſt to the Sun and Earth. His* Belts *are ſo viſible, that his* Rotation *may be* eaſily *obſerved.*

ADVERTISEMENT.

☞ *Our Correſpondents, in general, are deſired to ſend all their Letters and Productions before the End of* May *(franked or Poſt paid); the ſooner they ſend the more they can be obliged; directed to the* Palladium-Author, *at Mr.* Cole's, Mathematical Inſtrument Maker, Fleet-ſtreet, London.

A COMPARISON *of ſome* Lunations, *according to the* Britiſh Nautical Ephemeris, *(vulgarly called the* Nautical Almanac, *from* De la Caille's *former* French *Title and Plan,) conducted by Mr.* Maſkelyne, *and the* French Connoiſſance des Tems, *(reduced to the Meridian of* Greenwich,) *conducted by Mr.* De la Lande.

	d	h	m			
June	20	5	8	M.	*Nautical Ephem.*	New Moon.
	19	6	36	M.	*Con. des Tems.*	Dif. + 10 h. 32 m. *Naut.*
July	4	7	37	M.	*Nautical Ephem.*	Full Moon.
	5	0	20	M.	*Con. des Tems.*	Dif. — 16 h. 43 m. *Naut.*
	11	4	43	A.	*Nautical Ephem.*	Laſt Quarter.
	11	4	51	A.	*Con. des Tems.*	Dif. — 8 m. *Naut.*
Sept.	1	3	41	M.	*Nautical Ephem.*	Full Moon.
	1	3	55	M.	*Con. des Tems.*	Dif. — 14 m. *Naut.*
	16	3	49	A.	*Nautical Ephem.*	New Moon.
	15	3	49	A.	*Con. des Tems.*	Dif. + 1 d. *Naut.*
	23	8	22	M.	*Nautical Ephem.*	Firſt Quarter.
	23	6	41	M.	*Con. des Tems.*	Dif. + 1 h. 41 m. *Naut.*
Oct.	22	4	41	A.	*Nautical Ephem.*	Firſt Quarter.
	22	4	50	A.	*Con. des Tems.*	Dif. + 9 m. *Naut.*
Nov.	21	4	31	M.	*Nautical Ephem.*	Firſt Quarter.
	21	4	45	M.	*Con. des Tems.*	Dif. — 14 m. *Naut.*

Quere *the Cauſe of ſo great a Difference.*

N. B. The *neareſt Numbers* to Truth may be diſcovered by a *careful* Computation from the *lunar Tables* and *Equations* in the *improved Royal Aſtronomer*; or from the *Durham Tables*; or, more readily, by a general *Compariſon* with other annual Computations.

Correction. *P.* 3. *L.* 23. [a] *omitted.* Read
Dunthorne *for a Bye-Blow exerted his Skill.*

NUMBER II.

ALPHABETICAL CHRONICLE *of* REMARKABLE EVENTS.

According to Authorities.

N. B. b ſtands for *before,* and *s ſince, Chriſt*; or a Date without any *Mark* before it denotes *ſince Chriſt.*

A. *Bef. & ſince Chr.*

Aaron born 1575, died *b.* 1453

Abel born, 3 of the World, killed by Cain 129 ditto.

Æſop died *b* 556

Ajax, Son of Teucer, flouriſhed *b* 1154

Ambroſius, Aurelius, choſen King of the Britons, and crowned at Stonehenge *s* 465

America, North, firſt diſcovered by J. Cabot, a Venetian (firſt ſettled in James the Firſt's Reign) *s* 1498

America, South, firſt diſcovered by Chr. Columbus (a Genoeſe) *s* 1493

Anaxagoras died, aged 70 *b* 428

Anaximander, who invented the Signs of the Zodiac, died, aged 64 *b* 64

Angelo, Michael, Painter, died, aged 89 *s* 1564

Annibal, (or Hannibal,) Carthaginian General, died *b* 260

Antiſthenes, Philoſopher, lived *b* 395

Antony, Marc, killed himſelf *b* 30

Apelles, the Painter, lived in the Time of Alexander the Great *b* 340

Apollonius, the Geometrician, lived *b* 242

Archilochus, Inventor of Iambic Verſe, lived *b* 686

Argos, Kingdom of, began under *Inachus,* 1080 Years before the firſt Olympiad, or *b* 1856

Argyle, Marquis of, beheaded in Scotland, May 27 *s* 1661

Argyle, Earl of, executed at Edinburgh s 1685

Ariſtarchus, Aſtronomer, died, aged 81 b 81

Ariſtides, Greek Orator, lived b 120

Ariſtophanes died, aged 80 b 200

Armada, of Spain, arrived in the Engliſh Channel, July 19, diſperſed by a Storm s 1588

Aſſyria, Kingdom of, began under Ninus b 2084

— laſted about 1264 Years, ending with Sardanapalus.

— Out of its Ruins were formed the Aſſyrians of Babylon, of Nineveh, and the Kingdom of Medes.

Athanaſius, St. died, aged 73 s 373

Athens taken by Xerxes b 480

Auguſtin, St. Father of the Latin Church, born 354, died s 431

Auguſtin, St. ſent by Pope Gregory to convert the Britons, landed in the Iſle of Thanet s 597

— was ſoon after made Archbiſhop of Canterbury, died s 604

Auſonius died s 392

B.

Babel, Tower of, began to be built b 2247

— continued building 40 Years, when God confounded their Language and diſperſed them into different Nations. Thence aroſe the Difference of Language, the Diſperſion of the People, and Formation of Empires. From Japhet, the eldeſt Son of Noah, ſprang the Inhabitants of the North of Europe and Aſia, and thoſe of the Weſt. From Shem came the People of the Eaſt, as alſo thoſe of Iſrael; and from Ham deſcended the Canaanites, Philiſtines, Egyptians, and antient Poſſeſſors of Africa.

Babylon, Kingdom of, founded by Nimrod b 2640

Bajazet defeated by Tamerlane, 1402, died s 1403

Baker, Sir Richard, Author of the Chronicle, born 1584, died s 1645

Balſhazzar ſaw the Handwriting on the Wall b 538

Bank of England eſtabliſhed s 1693

Baronets 1ſt created s 1611

Barrow, Rev. Dr. Iſaac, died, aged 47 s 1677

Bath, Order of the, inſtituted at the Coronation of Henry IV. re-eſtabliſhed s 1725

Battle, fought by Marinus, who made a great Slaughter of the Teutones and Ambrones, near Aix in France, 200,000 of them being left dead in the Field, and 80,000 taken Priſoners b 102

— 70,000 of the Saracens ſlain in Battle by Ramirus, King of Spain s 844

— July 29, Baſilius, Emperor of the Eaſt, defeated the Bulgarians, made 15,000 of them Priſoners, whoſe Eyes he cauſed to be put out, except one Man in a Hundred, to whom he left one Eye to ſerve as Leaders to the Reſt 1014

— of Aſhdown, between Canute & Edmund 1016

Battle of Haſtings, where King Harold was killed, Oct. 14 1066

—Bovines, Jul. 25 1214

—Lincoln, May 19 1217

—Lewes, May 14 1264

—Eveſham, Aug. 4 1265

—Bannockburn, June 25 1314

— Hallidon-hill, near Berwick, where 30000 Scotch were ſlain, and only 15 Engliſh, July 19 1333

—Creſſy, Aug. 26 1346

—Durham, when David King of Scots was taken Priſoner, Oct. 17 1346

—Poictiers, when the K. of France and his Son were taken Priſoners, Sep. 19 1356

— Otterburne, between Hotſpur and the Earl of Douglas, July 31 1388

—Shrewſbury, July 12, 1403

— Agincourt, Oct. 25 1415

— Beaugé, where the D. of Clarence was killed, April 3 1421

— Crevant, June, 1423

—Verneuil, Au. 27 1424

—Herrings, Fe. 12 1429

— St. Albans, May 22 1455

— Bloreheath, Sept. 23 1459

— Northampton, Jul. 10 1460

—Wakefield, De. 24 1460

—Touton, Mar. 29 1461

—Hexham, May 15 1464

—Banbury, Jul. 26 1469

—Stamford, March 1470

—Barnet, Apr. 14 1471

— Tewkſbury, May 4, 1471

—Boſworth, Au. 22 1485

— Stoke, June 6 1487

— Blackheath, June 22 1497

Battle of Floudon, when James IV. K of Scots, was killed, Se. 9 1513
—Solway, Nov. 24 1542
—Pinkey, Sep. 10 1547
— St. Quintin, Aug. 10 1557
—Edgehill, Oct. 23 1642
—Shatton, May 16 1643
—Lanſdown, Jun. 5 1643
—Roundaway-down, July 13 1643
—Newbury, Se. 20 1643
— Marſton-Moor, July 2 1644
—Newbury, Oc. 27 1644
—Naſeby, June 1645
—Dunbar, Sep. 3 1650
—Worceſter, Sep. 3 1651
—Bothwell-Bridge, June 22 1679
—the Boyne, Jul. 1 1690
—Aughrim, Jul. 22 1691
—Blenheim, Au. 2 1704
—Ramilies, Whitſunday 1706
— Oudenard, June 30 1708
— Malplaquet, Sept. 11 1709
—Dumblain, No. 12 1715
— Dettingen, June 26 1743
— Fontenoy, April 30 1744
— Preſton-Pans, Sep. 21 1745
—Falkirk, Ja. 17 1746
—Culloden. Ap. 16 1746
—Roſbach, Nov. 5 1757
—Minden, Aug. 1 1759
Bede, Venerable, aged 53, died 735
Behn, Mrs. died 1689
Bentley, (Ego ſum Bentleius), Rev. Dr. Rich. born 1662, died 1742
Berkeley, Biſhop of Cloyne (who raiſad the Ghoſts of departed Quantities) died, aged 73 1753
Bible, Tranſlation of it firſt allowed 1539
Bigamy, Statute of, firſt paſſed 1277
Biſhops, 7, burnt 1555
Blackmore, Sir Richard, died old 1729
Blake, Admiral, born 1598, died 1657
Blood ſeized the Duke of Ormond with an Intent to hang him at Tyburn, but was prevented, Dec. 6 1670
— attempted to ſteal the Crown out of the Tower, May 9 1671
Boadicea burnt London, and maſſacred 70,000 Inhabitanls; ſoon after, being defeated by Suetonius, poiſoned herſelf 59
Borgia, Cæſar, killed himſelf, Mar. 12 1508
Boyer, the Lexicographer, born 1664, died 1729
Brahe, Tycho, born 1546, died 1601
Bread, firſt Aſſize of, made 1202
Britain firſt diſcovered to be an Iſland 90
Britons applied to Rome for Aid againſt the Scots, and refuſed, 446, invited over the Saxons 448
Buckingham, Duke of, aſſaſſinated at Portſmouth by Fenton, aged 35, Au. 23 1628
Burnet, Biſhop of Sarum, born 1643, died 1715
Buſby, Rev. Dr. Richard, born 1606, died 1695
Butler, Samuel, the Poet, born 1612, died 1680
Byng, Admiral, ſhot at Spithead, March 14 1757

C.

Calais taken by the Engliſh, Aug. 4 1347
— retaken by the French, December 1557
Cambridge Univerſity, founded 915. Burnt by the Danes 1010
Cambden, the Hiſtorian, born 1551, died Nov. 9 1623
Canute, firſt Daniſh King of England, invaded England 1015; was choſen King by the Clergy, at Southampton, 1016; began to reign alone 1017; made Alliance with Normandy, and married Emma, Ethelred's Widow, 1018; made a Voyage to Denmark, attacked Norway, and took Poſſeſſion of the Crown, 1028; died at Shafteſbury. in England, 1036; was buried at Wincheſter, and ſucceeded by his Son Harold.
Cardinal, the Title of, firſt uſed about the 9th Century.
Caroline, Queen to George II. died of a Mortification in the Bowels, aged 54, Nov. 20 1737
Cato killed himſelf, aged 48, Feb. 5 *b* 45
Catullus, born at Verona, 87, died *b* 11
Centlivre, Mrs. Suſan, died Dec. 1 1723
Cervantes, Mich. de, born at Madrid 1549, died 1616
Chambers, Ephraim, Writer of the Dictionary of Arts, died 1740
Charter-houſe founded by Tho. Sutton, Eſq. 1611
Chaucer born, 1328, died 1400
Chriſtianity ſuppoſed to be eſtabliſhed in Britain 60
Churches firſt began to be built 696
Cicero born, *b* 107; made an Oration againſt Verres, 70; made his ſecond Oration againſt the

the Agrarian Law, 65; baniſhed Rome, April, 58, died *b* 43
Clarke, Rev. Dr. Samuel, born 1675, died 1729
Claudius Cæſar landed in Britain, Auguſt 43
Cleopatra, Queen of Egypt, killed herſelf, aged 50 *b* 20
Coaches firſt uſed in England 1155
Coaches, Hackney, Act for licenſing them paſſed 1693
Codrus, the laſt Athenian King, voluntarily gave his Life for the Good of his Country, after he had reigned 21 Years *b* 1095
Goke, Lord Chief Juſtice, born 1549, died 1654
Colet, Dr. John, Founder of St. Paul's School, born 1466, died 1519
Coloſſus of Rhodes thrown down by an Earthquake *b* 224
Comets appeared in 1104, 1107, 1110, 1256, 1315, 1371, 1401, 1577, 1618, 1647, 1652, 1661, 1664, 1665, 1666, 1667, two in 1680, &c.
Confucius, the Chineſe Philoſopher, born *b* 551
Congreve, William, born 1672, died 1729
Conſtantinople founded by the Argives, *b* 658, taken by the Turks s 1453
Copernicus, Aſtronomer, of Thorn in Pruſſia, died, aged 60 1543
Cornelius Nepos, an Author, died about *b* 25
Coventry Act paſſed 1669
Cowley, Abraham, the Poet, born 1618, died 1667
Cranmer, Abp of Canterb. burnt, Mar. 21 1556
Cromwell, Oliver, born April 25, 1599, at Huntingdon; made Colonel 1643; went over to Ireland with his Army, July 1649; returned, May 1650; made Protector, for Life, Dec. 12, 1653; was near being killed by falling from a Coach-box, October 1654; elected King, but refuſed the Title, May 8, 1657; died, at Whitehall, of the Gout in his Stomach, Sept. 3, 1658; leaving his Son Richard his Succeſſor.
Cromwell, Richard, proclaimed Protector, Sep. 3, 1658; depoſed April 22, 1659; died, aged 89, Jul. 12 1712
Curtius, Quintus, lived s 64
Cyprian, St. martyred 258
Cyrus took Babylon, after a long Siege, *b* 544, died *b* 529

D.

Darnley, Lord, married Mary of Scots, 1561; murdered, by being blown up, Fe. 10 1567
David ſucceeded Saul on the Throne of Iſrael, *b* 1055; committed Adultery with Bathſheba, *b* 1035; married her, *b* 1033; died, aged 70 *b* 1015
Death, Capt killed in an Engagement with a French Ship, Dec. 23 1757
Delphos, Temple of, built *b* 548
Deluge, general, threatened in the Year 1536; began Nov. 25, in the Year of the World 1656, that is, *b* 2348. It continued a whole Year, Noah being about 600 Years old. The 17th of the ſeventh Month the Ark reſted upon Mount Ararat; the 1ſt of the 10th Month the Tops of the Mountains appeared; 27th of the 2d Month, *b* 2347, Noah left the Ark, on Friday, December 18, having been in it 377 Days.
Deluge of Deucalion in Theſſaly *b* 1529
Democritus, Philoſopher, died, aged 109 about *b* 403
Demoſthenes, a Greek Orator, called from Baniſhment, *b* 322. Poiſoned himſelf, aged 62 *b* 313
Des Cartes, French Philoſopher, born in Touraine, 1596, died 1650
Diana, famous Temple of, at Epheſus, burnt by Eroſtratus, to record himſelf *b* 356
Diodorus Siculus lived *b* 45
Diogenes, the Cynic, died *b* 324
Doctor, the Degree of, firſt given in Eng. 1207
Doomſday-book (of valuing Engliſh Land) finiſhed after 6 Years Labour 1085
Drake, Sir Francis, ſet Sail on his Voyage round the World 1577, died in England, aged 50, Jan. 28 1595
Dryden, John, a great Poet, born 1631, died May 1 1700
Duck, Rev. Stephen, (unworthy of the Bounties beſtowed on him) drowned himſelf like a Gooſe 1756
Duelling introduced into England 1587

Dunkirk taken by the Engliſh, Jun. 24, 1658; ſold to the French for 500,000 *l.* Octob. 17 1662

Dionyſius, the elder Tyrant of Syracuſe, died *b* 368

Dionyſius Halicarnaſſeus lived *b* 30

E.

Earthquake ſwallowed up ſeveral Villages in the Neighbourhood of Cybyra *s* 417

— ſwallowed ſeveral Cities in Paleſtine *s* 419

— at Antioch ſwallowed up 4800 Inhabitants *s* 428

— almoſt entirely threw down the City of Antioch, Sept. 14, at Night *s* 458

— at Conſtantinople, which laſted 40 Days, and overturned ſeveral ſtately Buildings *s* 480

— deſtroyed Antioch and ſeveral other Cities *s* 526

— at Conſtantinople that laſted 40 Days *s* 553

— a great one at Rome and Conſtantinople, which overthrew many Houſes *s* 557

— A great one in England, Dec. 1116

— in September 1120

— King Henry ſurpriſed by a terrible one, when he was about to take Ship and ſail for Normandy from England, the Flames breaking out of certain Rifts of the Earth with great Violence, Aug 2 1134

— The City of Catania and upwards of 15000 Souls ſwallowed up by one 1173

— A great one in England that overturned the Church of Lincoln and other Churches 1185

— A dreadful one, Feb. 4 1248

— Several Steeples and Houſes thrown down in Somerſetſhire by one 1249

— A general one in England, that threw down St. Michael's Church on the Hill, without Glaſtonbury, in England 1247

— The greateſt one ever known in England, Nov. 14 1318

— Several Churches thrown down by one in England, May 21 1382

— a dreadful one, accompanied with Thunder and Lightning, Sept. 28 1426

— Two Shocks of one in London, Jan. 8 and Feb. 8 1750

— One laid all Liſbon in Ruins, Nov. 1 1755

Egypt, Kingdom of, began under Miſriam, the Son of Ham, the 2d Son of Noah, *b* 2188 and laſted 1663 Years.

Empedocles flouriſhed *b* 455

Epictetus, alive *s* 94

Epicurus born *b* 342, died *b* 271

Epiſcopacy aboliſhed in Scotland *s* 1638

Eraſmus, born at Rotterdam, 1467, died 1536

Euclid died, aged 70, about *b* 241

Eugene, Prince, died, aged 72, Apr. 10 1736

Euripides died, aged 77 *b* 407

Exchange, Royal, firſt finiſhed at the Expence of Sir Thomas Greſham, 1569; called Royal by Queen Elizabeth, Jan. 29, 1571; rebuilt, finiſhed, and opened, (for mercantile Traffic), Sep. 28 1669

Exchequer, Court of, inſtituted 1074

Exciſe-Office formed 1643

F.

Famine, Beginning of that which laſted 7 Years, *b* 1708. An extraordinary one at Rome, when many Perſons threw themſelves into the Tyber, *b* 440. So dreadful an one in Italy, that Parents were put to the cruel Neceſſity of eating their own Children, *s* 450. One in 976; another, 1005; another, 1087; another, 1193; another, 1251; another, 1315; another, 1318; another, 1335; another, 1348; another, 1389; another, 1438. *See Occurrences extraordinary hereafter.*

Farquhar, George, dramatic Author, born 1678, died *s* 1707

Faſts eſtabliſhed in the Church 138

Faux, Guy, executed (for his Plot) in Parliament yard, aged 31 1606

Ferrers, Earl, hanged at Tyburn, for murdering his Steward 1760

Feudal Law begun 1070

Flamſtead, John, Aſtronomer, born 1646, died 1719

Fletcher, John, dramatic Writer, born 1576, died 1625

Foreſt, New, made 1081

Foreſt, John, aged 42, burnt in Smithfield for denying the Supremacy, May 22 1538

Fox, George, Founder of the Quakers, appeared 1655

Frederic, Prince of Wales, arrived in England, Dec. 1729, died, aged 43, March 30 1751

Friend, Dr. John, born 1675, died 1728

Froſt, hard one, Chriſtmas, 1709, again 1739

G.

Galen, born at Pergamus about *s* 131 died *s* 201

Garter, Order of, inſtituted, April 23, 1349, underwent ſome Alteration 1552

Garth, Sir Samuel, died, January 1719

Gay, John, born 1688, died 1732

Gibraltar taken by Sir George Rook, July 24, 1704; beſieged by the Spaniards (in vain) Fe. 27 1727

Gladiators, the Combats of them aboliſhed by Conſtantine *s* 325

Greenland diſcovered in the Reign of James I.

Guildhall, London, built *s* 1410

Gunpowder firſt found out by a Monk of Cologne 1400

Gunpowder-Plot diſcovered, Nov. 5 1605

Guns, Uſe of, introduced *s* 1382

Gunter, Rev. Edmund, Mathematician, died, aged 46 1626

Guy, Thomas, formerly a Bookſeller, died, aged 79, Dec. 27, 1724. He left 200,000 *l.* for building an Hoſpital.

H.

Habeas-Corpus Act paſſed May 27 1679

Halley, Edmund, born 1656, died 1742

Handel (great Muſician) died, aged 75, April 14 1759

Havannah taken, Au. 13 1762

Hector, Trojan Prince and General, died *b* 1184

Helena flouriſhed *b* 1149

Hepheſtion, the Macedonian General and Favourite of Alexander, died *b* 325

Heptarchy, the Saxon, begun in the 6th Century, and continued till *s* 800, when Egbert reigned alone.

Herodotus born, *b* 484, died *b* 413

Heſiod, lived *b* 944

Hipparchus, Aſtronomer, flouriſhed between 160 and *b* 125

Hippocrates died, aged 98 *b* 361

Hogarth, William, died, aged 66 1764

Homer, born about 1041, flouriſhed *b* 907

Horace born at Venduſium, *b* 65; died *b* 8

Horrox, Jeremiah, Aſtronomer, born about *s* 1619

Hudſon's Bay diſcovered by Cap. Hudſon *s* 1610

Huygens, Dutch Aſtronomer, born 629, died 1695

I.

Ireland conquered by Henry II. 1172

Iſocrates, Athenian Orator, died, aged 89 *b* 338

Iſraelites Departure out of Egypt, Tueſday, May 5, *b* 1491. Fed with Manna from Heaven, Thurſday, June 4, ſame Year. Paſſed over to Jordan with Joſhua, *b* 1451, according to Kennedy.—*Whoſe Week-Days and Month-Days are right, by the Dominical-Letter Table, P.* 14, *Pall.* 1772, *but his Dates are doubtful.*

Jamaica taken *s* 1655

Jeruſalem taken by Nebuchadnezzar, after a Siege of 18 Months, June 9, *b* 587; deſtroyed, Aug. 31, *b* 70; taken by Robert, Duke of Normandy, who was there elected King of that City *s* 1100

Jeſus Chriſt, born Monday, Dec. 25, in the Year of the World 4005; in that of Rome 752; 4 Years before the common Æra; his firſt Miniſtry in 30; baptized by John, 30; celebrated his laſt Paſſover, and inſtituted his Sacrament, inſtead thereof, Thurſday, Ap. 2; crucified April 3, at 3 in the Afternoon; roſe April 5; aſcended Thurſday, May 14; all in *s* 33. *Kennedy.*

N. B. The Dominical Letter for *s* 33 is D, and (by Tab. P. 15, Pal. 1772) April 2 is on a Thurſday, and ſo is May 14, ſame Year; ſo that Kennedy is right in his Week and and Month Days, in the reputed 33d Year of Chriſt. Who makes 37 Years of Age, at his Death, by adding 4 Years more to his reputed Years.

⁂ Inſtead of 1 Year before Chriſt, take 4 Years complete before the 1ſt of Chriſt, (or 4 Years ſooner,) which will be December 25, in the 5th Year before Chriſt, to which the Dom. Let. O. S. for Dec.

is A, (being Leap-Year,) therefore Dec. 25 (by Tab. P. 15, Pall. 1772) is on a Monday, according to Kennedy; if he is right in his Date; which is doubtful. — If Chriſt was born on Dec. 25 in the 4th Year before the common Æra, the Dominical Letter will be G, and the 25th of that December was on a Tueſday. But the 1ſt reputed Year of Chriſt has the Dominical Letter B, and Dec. 25 will be on Sunday, the Day of his Birth, more likely than on Monday. The Kennedian Calculators going a doubtful Number of Years back, to get a Week-day to their Fancy.

Joan d'Arc, the Maid of Orleans, burnt for a Witch, June 14 *s* 1431

Job died, aged 189 *b* 1533

Johnſon, Ben, died, aged 62 *s* 1637

Joſeph ſold, *b* 1728; tempted by Potiphar's Wiſe, *b* 1718; made Governor of Egypt, *b* 1715; died in Ægypt, aged 110 *b* 1635

Joſephus, Hiſtorian, died, aged 56 *s* 93

Julius Cæſar born July 10, *b* 100; invaded Britain, landing at Deal, Aug. 26, *b* 55; killed in the Senate-houſe, March 15 *b* 44

Juſtin, the Author, lived *s* 250

Juvenal, Poet, born *s* 45; died *s* 127

K.

Keil, John, Aſtronomer, born 1671, died *s* 1721

Kepler, John, Aſtronomer, born at Wirtemburgh 1571, died 1630

Kent, Maid of, executed at Tyburn 1534

Kirby and Wade, Captains, ſhot at Plymouth for Deſertion, Apr. 14 1703

L.

Laertius lived *s* 183

Lambeth College and Chapel founded by Hubert, Archbiſhop of Canterbury, about 1196

Lazarus raiſed from the Dead, *s* 33; died Dec. 17 *s* 63

Lee, Nathaniel, dramatic Author, flouriſhed, *s* 1690; died aged 33.

Leibnitz born in Leipſic, 1646, died 1716

Leland, John, Antiquary, died 1552

L'Eſtrange, Sir Roger, born 1617, died 1705

Library, Alexandrian, of 400000 valuable Books, burnt by Julius Cæſar *b* 47

Lily, William, the Grammarian, died, aged 55 1523

Lock, John, (the Author,) born 1682, died Oct. 28 1704

London repaired by Alfred, *s* 885; burnt to the Ground, 982; nearly deſtroyed by Fire, 1077; again, 1130; again, 1666, when 13,200 Houſes were conſumed, a Year after the Plague.

London-Bridge built, about 1098

Longinus, the Orator, put to Death *s* 273

Lotteries firſt eſtabliſhed *s* 1614

Louiſbourg taken, July 27, 1757

Lucan, Author, born in Spain Nov. 11, *s* 37; condemned and bled to Death in a hot Bath, April 30 *s* 64

Lucretius born at Rome, *b* 95; put an End to his Life in a raging Fit *b* 52

Luther Martin, appeared, 1518; died 1546

Lycurgus, the Spartan Lawgiver, born *b* 926; eſtabliſhed his Body of Laws in Lacedemon, *b* 884; died in Crete *b* 872

Lyſimachus, the Macedonian General, died, aged 80 *b* 281

M.

Macedon, Kingdom of, began under Caranus *b* 814

Macedonian War began *b* 200

Machiavel died *s* 1530

Macrobius died *s* 415

Madeira Iſland diſcovered by the Portugueze *s* 1420

Magna Charta granted by King John, June 19 1215

Mahomet, the falſe Prophet, born at Mecca, May 5, 570; began to teach his Errors, 612; died June 18 *s* 631

Manilla, City of, taken from the Spaniards, July 27 1757

Marcellus died *b* 23

Marlborough, John, famous Duke of, died, aged 72, June 16 1722

Marriage-act paſſed 1753

Martial, born at Bilboa, *s* 34; died *s* 109

Maſſacre, Iriſh, when 40,000 Engliſh Proteſtants were inhumanly murdered *s* 1641

—of Glencoe, Fe. 13 1693

Mazarine, Cardinal, died, aged 59 s 1661

Mead, Dr. Richard, born 1673, died 1754

Mecænas died b 8

Methuſalem, the longeſt Liver, died a little before the Flood, aged 969, in 1656 of the World.

Militia bill paſſed 1757

Milton, John born 1608, died blind 1674

Minorca taken by General Stanhope Auguſt, 1708 ſurrendered to the French, Jun. 1756

Mithridates ordered all the Romans that were in Aſia to be put to Death b 88

Monk General, Arbiter of England's Fate, 1659; made Duke of Albemarle, July 12 1660

Monmouth, Duke of, invaded England, June 11, 1685; proclaimed King at Taunton, June 20 following; defeated near Bridgewater, July 5; beheaded on Tower-hill, July 5 following, aged 35.

Moorfields made into Walks 1614

Moſes born, b 1571; ſent the 10 Plagues of Egypt, b 1491; about the ſame Time brought Water out of the Rock; ſaw the burning Buſh the ſame Year; received the Tables of Stone on Mount Sinai, May 4, b 1491; died b 1451

Muſeum eſtabliſhed 1753

N.

Navy-Office founded, Dec. 4 1644

Nero murdered his Mother s 55

Newton, Sir Iſaac, born Dec. 25, 1642, died March 20 1726

Noah directed to build the Ark, 1536 of the World, 120 Years before the Flood; died, aged 950 b 1998

Norwich, City of burnt and deſtroyed by Sweyn K. of Denmark 1004

Nova Scotia peopled from England 1749

O.

Orlando Furioſo died 772

Oughtbred, Rev. Wm, born 1573, died 1660

Ovid born at Sulmo, b 43, died s 15

Oxford Univerſity founded by Alfred s 886

P

Pantheon at Rome built by Agrippina b 25

Par, Thomas, died, aged 152, 1635. He lived in 10 Kings Reigns.

Paracelſus died, aged 48 s 1541

Paris, Matthew, Hiſtorian, died s 1259

Parliament, 1ſt, in King John's Reign, the Epoch of the Houſe of Commons, Jan. 20, 1265; the firſt Britiſh one met Oct. 24, 1707

Parmenides, Philoſopher, lived b 505

Paſchal, Blaize, Biſhop, born at Auvergne 1623, died 1662

Patrick, 1ſt Biſhop in Ireland, died, aged 122 491

Paul's, St. in London, built by Ethelbert, K. of Kent, on the Foundation of an old Temple of Diana, 596; burnt, 964; rebuilt and conſecrated, 1240, having been 150 Years building; rebuilt, having been burnt down 1631

Peloponneſean War, which continued 27 Years, began b 431

Pericles, Athenian General, died, aged 70 b 429

Peter I. Czar of Ruſſia, died, aged 53 1725

Phædrus born, b 47; died s 31

Pharaoh ordered all the male Children of the Hebrews to be deſtroyed. b 1573; drowned with his Hoſt in the Red-Sea, Monday, May 11 b 1491

Phyſicians College London, founded 1519

Pilate made Governor of Judea, s 27; ſlew himſelf s 40

Pindar, Poet, died, aged 80 b 435

Plague viſited almoſt the whole World b 767

— A great one in Rome, which carried off 10 Thouſand People in a Day s 78

— The Weſtern Parts of England (particularly Oxford) greatly afflicted with one 1371

— July 9, 1391, the Sun appeared to be obſcured by certain thick and dreary Clouds between him and the Earth. Theſe Clouds roſe daily for 6 Weeks together. The North and Eaſt Parts of England, at this Time, were afflicted with a Peſtilence. In a few Weeks died 11000 Perſons in the City of York.

— in England, 1247; again, 1347; in Germany, which cut off 90,000 People, 1348; in Paris and London, very dreadful, 1362;

again, 1379; one in England, when 30000 died in London, 1407; again, when more were deſtroyed than in 15 Years War, 1477; again, when 30,000 died in London, 1499; again, 1548; again, 1594; again, in London, which carried off the Fourth of its Inhabitants, 1604; at Conſtantinople, when 200,000 died, 1611; again, at London, when 35417 died, 1625; at Lyons, in France, where 60000 died, 1632; again, at London, when 68000 periſhed 1665

Plato died, aged 80 *b* 348

Plautus died *b* 184

Pliny II. died, aged 56 *s* 74

Pliny the younger lived *s* 59

Plutarch died *s* 119

Plymouth burnt by the French 1377

Polybius born *b* 205

Pomfret, Rev. Mr. died young 1709

Pompey killed in Egypt by Order of Ptolemy *b* 48

Pope, Alexander, died, aged 55 1744

Portobello taken by Admiral Vernon, Nov. 12 1739

Portſmouth burnt, 1265; again by the French 1377

Poſt-Office, General, eſtabliſhed, December 27 1660

— Penny Ditto 1683

Predeſtination eſtabliſhed by Lucidus, a Prieſt of Gaul *s* 470

Priam, King of Troy, died *b* 1184

Prideaux, Humphry, born 1648, died 1724

Printing firſt made public by one John Fauſtus, a Goldſmith of Mentz, 1458; firſt brought into England by William Caxton, a Mercer of London 1471

Prior, Matthew, died, aged 56, Sep. 18 1721

Puffendorf died, aged 62 1694

Punic War, firſt, commenced, *b* 264; 2d, *b* 218; 3d *b* 149

Pythagoras died, aged 80 *b* 497

Q.

Quebec taken, Se. 13 1759

Quintilian died *s* 95

R.

Rabelais, Francis, born 1483, died 1553

Raleigh, Sir Walter, beheaded in Old-Palace-Yard, Weſtminſter, aged 65, Oct. 29 1618

Rapin de Thoyras died, aged 64, May 16 1725

Ravillac murdered Henry IV. of France, May 14 1610

Reformation begun, 1530, completed 1547

River, New, brought to London 1614

Robin Hood and Little John, great Robbers in Nottinghamſhire 1189

Rocheſter, Wilmot Earl of, died, aged 32, July 26 1680

Rocheſter, City of, burnt 1137

Rollin, Charles, died, aged 80 1741

Rome founded, April 20, *b* 753; Romulus firſt King; its Capitol burnt *b* 83

Roſamond, Miſtreſs to Henry II. 1172; ſhut up at Woodſtock 1189

Roſcommon, E. of, died 1684

Rowe, Nicholas, died, aged 44, Dec. 6 1718

— Elizabeth, died, aged 63, Feb. 20 1737

Roxana, and her Son Alexander, deſtroyed by Caſſander *b* 311

Rubens, Paul, born 1577, died 1640

Ruſhworth, Joſeph, born 1607, died 1690

S.

Sabines, the Rape of the, by the Romans *b* 750

Sackville, Lord George, tried, Aug. 15 1760

Salluſt died *b* 34

Salt Duties formed, June 15 1702

Sampſon pulled down the Temple of Dagon, and deſtroyed 3000 Philiſtines, *b* 1117, having been Iſrael's Avenger for 20 Years.

Samuel born, *b* 1139, died *b* 1061

Sanderſon, Mathematician, born 1682, died 1739

Sappho lived *b* 603

Saul, 1ſt King of Iſrael, began to reign, *b* 1095, killed himſelf *b* 1055

Scaliger, Julius Cæſar, died, aged 75 *b* 1558

Scipio, Cn. took the two Camps of Aſdrubal and Syphax, killed 40,000 of their Men, and took 6000 Priſoners *b* 214

Sea-Fight, in the Downs, with the Dutch, June 19 1652

— near Portland, with the Dutch, who were beaten, Feb. 18 1653

— with the Dutch, June 2, ſame Year.

— again, July 19, ſame Year.

— with the Dutch, June 3, 1664, when the Engliſh conquered.

Sea-Fight, of four Days, June 4 1666
— Victory of the Engliſh, Jul. 25 following.
— with the French, when their Ships were burnt near Martinico, June 25 1667
— at Solebay, May 28 1672
— with the Dutch, May 28 1673
— with the Dutch, June 4, ſame Year.
— at the Texel, Auguſt 11 1673
— Engliſh and Dutch beat by the French off Beachy Head, Jun. 30 1690
— French beat off La-Hogue, May 19 1692
— Spaniards beat by Sir George Rook, Oct. 12 1702
— French Fleet deſtroyed by Sir George Byng, Aug. 11 1718
— off Toulon, Feb. 9 1744
— of Admiral Hawke 1759
Semiramis, Queen of Aſſyria, died *b* 1965
Seneca born at Corduba, in 1 of Chriſt, died 64
Shadwell, Thomas, born 1640, died Nov. 20 1692
Shakeſpear, William, born 1564, died April 23 1616
Shem, Son of Noah, died, aged 600 *b* 1846
Shore, Jane, Miſtreſs of Edward IV. did Penance 1483
Shovel, Sir Cloudeſly, loſt on the Rocks of Scilly, aged 56, Oct. 22 1767
Sicily firſt peopled from Italy *b* 1292
Simonides, Poet, flouriſhed *b* 503
Sloan, Sir Hans, born 1660, died Jan. 11 1752
Socrates, Philoſopher, put to Death by Poiſon, aged 70 *b* 400
Sodom burnt, in the 65th Year of Lot's Age *b* 1897
Solomon born, *b* 1043; ſucceeded his Father David on the Throne, *b* 1015; laid the Foundation of the Temple, May 21, *b* 1012; finiſhed it, *b* 1008; dedicated it, Friday, Oct. 30, *b* 1000; wrote his Eccleſiaſtics, *b* 981; died *b* 975
Solon died, aged 80 *b* 640
Sophocles died, aged 90 *b* 406
South-Sea Act paſſed, May 6, 1716; its Bubble 1720
Stamp-Duties inſtituted, June 28 1624
Star-Chamber, Court of, inſtituted 1487, aboliſhed 1641
Steel, Sir Richard, died, aged about 53, Sep. 21 1729
Style altered by Auguſtus Cæſar, who ordered Leap Year once in 4 Years, and the Month Sextilis to be called Auguſtus, *b* 8; again, at Rome, by taking 12 Days off the Calendar, 1582; again, at London, by taking 11 Days off the Calendar, Sep. 2, 1752, making the 2d the 13th of September.
Suetonius, Hiſtorian, flouriſhed, *s* 110, died 117
Suidas lived *s* 1087
Sweden, Guſtavus Adolphus, King of, killed at the Battle of Lutzen, Nov. 16 1632
— Charles XII. of, ſhot in Battle, aged 30, Dec. 11 1718
Swift, Dean, died, aged 78, October 1745
Sydenham, Dr. Thomas, died, aged 65, Dec. 29 1689
Sylveſter, Joſhua, died, aged 55 1618
Syſygambis, Mother of Darius, on hearing of the Death of Alexander at Babylon, ſtarved herſelf to Death *b* 324

T.

Tacitus alive *s* 97
Tamerlane, Conqueror of Aſia, born at Keck, *s* 1336, died 1405
Taſſo died, aged 51 1595
Terence died, aged 64 *b* 159
Thales, Philoſopher, born *b* 640, died *b* 572
Thucidides, Athenian General, baniſhed by Oſtraciſm, aged 26 *b* 444
Tibullus born, *b* 43, died *b* 11
Timoleon, of Syracuſe, died *b* 337
Tobacco firſt brought to England *s* 1583
Toleration Act paſſed 1689
Tower of London built *s* 1080
Trade and Plantation Office formed, Nov. 7 1660
Troy new built, *b* 1255; burnt, June 12, at Night *b* 1184
Turkey Company eſtabliſhed 1579
Tycho Brahe, of Denmark, born 1546, died 1601
Tyler, Wat, Rebel, killed by Walworth, Mayor of London 1381

U.

Ulyſſes flouriſhed *b* 1149
Union of England and Scotland, May 1 1707
Vanburgh, Sir John, died, March 26 1726

Vandyck born at Antwerp, 1599; died at London 1641

Varro, Terentius, died, aged 88 *b* 28

Venice took its Riſe, s452; reduced to Aſhes 1101

Veſpaſian conquered the Iſle of Wight s43

Victualling-Office inſtituted, Dec. 10 1663

Virgil born at Andes, near Mantua, *b* 69; died at Brunduſium in Italy *b* 18

Virginia planted by the Engliſh 1608

Virginius kill'd his Daughter to prevent her falling a Prey to Claudius *b* 449

W.

Walpole, Sir Robert, afterwards Earl of Orford, born 1674, died 1745

Walſh, Poet, born 1659, died 1708

Weſt-Indies diſcovered by Columbus 1493

Weſtminſter-Abbey built by Sebert, King of Eſſex, on the Spot where the Temple of Apollo once ſtood, about s600; its Monaſtery conſecrated by Edward the Confeſſor, 1065; rebuilt and conſecrated 1269

Weſtminſter-Hall built, about 1098, rebuilt 1399

Weſtminſter-Bridge opened, Nov. 17 1750

Whiſton, William, Aſtronomer, born 1667, died 1752

Whittington, Sir Richard, Lord Mayor of London 1377

Wingate, Edmund, died, aged 61, Dec. 16 1656

Wolf, General, killed, aged 33, at the taking of Quebec 1759

Wolfius, Mathematician, died, aged 64 s 1805

Woolaſton, Rev. William, (Improver of moral Truth,) born 1659, died 1724

Woolſton, Thomas, (Latitudinarian,) born 1669, died 1733

Wren, Sir Chriſtopher, died, aged 90 1723

Wycherly, William, born 1640, died 1715

X.

Xenophon died at Corinth, aged 90 *b* 359

Y.

York City and Cathedral burnt by the Danes, 1069; burnt again 1179

Young, Dr. Edward, died, aged 81 1765

Z.

Zechariah flouriſhed *b* 520

Zeno died, aged 98 s 264

Zephaniah the Prophet, flouriſhed *b* 641

Zoroaſter flouriſhed *b* 2066

KINGS *of* ENGLAND *ſince the Heptarchy, and the Years they reigned.*

Began to reign.	*Names.*	*Reigned* Y.	M.
800	Egbert, of Weſt Saxons	38	0
838	Ethelwulf	19	
857	Ethelbald	3	
860	Ethelbert	6	
866	Ethelred I.	6	
872	Alfred	29	
900	Edward the Elder	25	
925	Athelſtan	17	
942	Edmund I.	4	
946	Edred	9	
955	Edwy	4	
959	Edgar	16	
975	Edward the Martyr	4	
979	Ethelred II.	7	
1016	Edmund II.	0	7
1017	Canute, K. of Denmark	22	
	Harold, Uſurper	5	
1039	Hardycanute	2	
1041	Edward the Confeſſor	25	
1065	Harold, Uſurper	1	
1066	William the Conqueror	21	
1087	William II.	13	0
1100	Henry I.	35	
1135	Stephen	19	
1154	Henry II.	35	
1189	Richard I.	10	
1199	John	17	
1216	Henry III.	56	
1272	Edward I.	35	
1307	Edward II.	20	
1327	Edward III.	50	
1377	Richard II.	23	
1399	Henry IV.	13	
1412	Henry V.	10	
1423	Henry VI.	39	
1461	Edward IV.	22	
1483	Edward V.	0	5
1483	Richard III.	2	
1485	Henry VII.	25	
1508	Henry VIII.	38	
1547	Edward VI.	6	
1553	Mary	5	

Began to reign.	*Names.*	*Reigned* Y.	*Began to reign.*	*Names.*	*Reigned* Y.
1558	Elizabeth — —	44	1688	William and Mary	14
1602	James I. — — —	25	1702	Anne — —	12
1625	Charles I. — — —	24	1714	George I. — —	12
	Cromwell, Uſurper.		1727	George II. — —	33
1649	Charles II. — —	25	1760	George III.	
1684	James II. — — —	4			

KINGS *of* SCOTLAND, *and the Years they reigned.*

Began to reign.	*Names.*	*Reigned* Y.	*Began to reign.*	*Names.*	*Reigned* Y.
422	Fergus — — —	18	904	Conſtantin III. — —	39
440	Eugenius I. — —	21	943	Malcolm I. — —	15
461	Dongard — — —	4	958	Indulphus — — —	10
465	Conſtantin I. — —	17	968	Duphus — — —	5
482	Congale I. — —	19	973	Cullenus — — —	5
501	Conran — — —	34	978	Kennet III. — —	17
535	Eugenius II. — —	33	994	Conſtantin IV. — —	2
568	Congale II. — —	10	995	Crimus — — —	8
572	Chinaule or Cumatillus		1003	Malcolm II. — —	30
580	Aldan — — —	26	1033	Duncan — — —	7
606	Clenet — — —		1040	Macbeth, *Tyrant* —	17
606	Eugene III. — —	14	1057	Malcolm III. — —	36
620	Ferchard I. — —	12	1093	Donald VII. — —	1
632	Donald — — —	15	1094	Duncan II. — — —	2
647	Ferchard II. — —	17	1096	Edgar — — —	10
668	Malwin — — —	20	1106	Alexander I. — —	18
688	Eugenius IV. — —	4	1124	David — — —	29
692	Eugenius V. — —	7	1153	Malcolm IV. — —	12
699	Amberchelet — —	2	1165	William — — —	49
700	Eugenius VI. — —	17	1214	Alexander II. — —	35
717	Mordac — — —	13	1249	Alexander III. — —	36
730	Etſinius — — —	31	1285	*Interregnum* — —	7
761	Eugenius VII. — —	3	1292	John Baliol — —	14
764	Fergus II. — — —	3	1306	Robert I. — — —	23
767	Solvatius — — —	20	1329	David II. and Richard	41
787	Achanis — — —	22	1370	Robert II. — — —	20
809	Congal III. — — —	5	1390	John Robert — —	33
814	Dongal II. — — —	6	1423	James I. — — —	14
820	Alpin — — — —	3	1437	James II. — — —	23
823	Kenet II. — — —	31	1460	James III. — —	28
854	Donald V. — — —	4	1488	James IV. — —	25
858	Conſtantin II. — —	16	1513	James V. — — —	29
874	Ethus I. — — —		1542	Mary *Stewart* — —	25
875	Gregory — — —	18	1567	James VI. — — —	58
893	Donald VI. — —	11			

The Succeſſors of James VI. *became Kings of* England *till* 1707, *when the two Kingdoms were united.*

⁂ *In our next* Palladium, 1774, *we propoſe to inſert an* Alphabetical Chronicle, Number III. *of the* Emperors *of* Rome, *(their Beginning to reign and Time of reigning,) from the* Foundation *thereof, (*750 *Years before* Chriſt) ; *the* firſt *and* laſt *Kings, in foreign Kingdoms, as far as they are known ; and other curious and uſeful chronological Accounts, mentioned at P.* 28, *laſt Year's* Palladium.

On

On the BEAUTIES *of a real Friend, and* DEFORMITIES *of a pretended One.*
The WISDOM *of the* SON *of* SIRACH. (*See* Eccleſiaſticus.)

WE ſhould have many Well-wiſhers, but *few* Friends. Sweet Language will multiply Friends, and a fair-ſpeaking Tongue will encreaſe kind Greetings. Be in Peace with Many, nevertheleſs have but *one Counſellor* of a Thouſand.

Many Friends are not unlike to having *many Wives*; ſeldom but *one*, (and ſometimes not *that*,) can be truſted. A Multitude of fair-ſpoken *Acquaintance*, are not unlike a Number of *fair Deceivers*.

If thou wouldſt get a *Friend*, prove him firſt; and be not haſty to credit him; for ſome Men are Friends for their own Occaſion, and will not abide in the Day of Trouble: And there is a Friend, who, being turned to Enmity and Strife, will diſcover thy *Reproach*. Some *Friends* are Companions at a *Table*, and will not continue in the Day of thy *Affliction*; but, in thy *Proſperity*, he will be as thy *Self*, and will be bold over thy Servants. If thou be brought low, he will be againſt thee, and hide himſelf from thy Face. — Separate thyſelf from thine Enemies, and take Heed of thy Friends.

A *faithful Friend* is a ſtrong Defence, and he that has found ſuch an one hath found a *Treaſure*. Nothing doth countervail a *faithful Friend*, and his Excellence is invaluable. A faithful Friend is the *Medicine* of Life; and they that fear the Lord ſhall find him. Whoſo feareth the Lord ſhall direct his Friendſhip aright; for as he is, ſo ſhall his Neighbour (that is, his *Friend*) be alſo.

Forſake not an *old Friend*; for the *new* is not comparable to him. A *new Friend* is as *new Wine*; when it is old thou ſhalt drink it with Pleaſure.

Whoſo caſteth a *Stone* at the Birds frayeth them away; and he that *upbraideth* his Friend *breaketh* Friendſhip.

Though thou draweſt a *Sword* at a *Friend*, yet deſpair not, for there may be a returning to Favour: If thou haſt opened thy Mouth againſt thy *Friend*, fear not, for there may be a Reconciliation; except for *Upbraiding*, or *Pride*, or *diſcloſing of Secrets*, or a *treacherous Wound*; for, for theſe Things every *Friend* will depart.

Whoſo *diſcovereth Secrets* loſeth his *Credit*, and ſhall never find a Friend to his Mind. Love thy *Friend*, and be faithful unto him; but if thou betrayeſt his *Secrets*, follow no more after him: For as a Man hath *deſtroyed* his Enemy, ſo haſt thou loſt the *Love* of thy Friend; *as one that letteth a Bird go out of his Hand, ſo haſt thou let thy Friend go, and ſhalt not get him again:* Follow after him no more, for he is too far off; he is as a *Roe* eſcaped out of the Snare. As for a *Wound*, it may be bound up; and after *reviling* there may be Reconciliation; but he that *betrayeth Secrets* is without *Hope*.

Of LAW *and* LAWYERS. *According to an eminent Author.*

IF a *Lawyer* were to be eſteemed only as he uſes his Parts in contending for *Juſtice*, and were immediately *deſpicable* when he appeared in a *Cauſe* which he could not but know was an *unjuſt one*, how honourable would his *Character* be! And how honourable is it in ſuch among us, as follow the Profeſſion no otherwiſe than as labouring to *protect* the injured, to *ſubdue* the Oppreſſor, to *impriſon* the careleſs Debtor, and to do Right to the painful Artificer! But many fall ſhort of this excellent *Character*, by the greater Number, who affect covering a *weak* Place in a *Client*'s Title, diverting the Courſe of an *Enquiry*, or finding a ſkilful Refuge to *palliate* a Falſehood: Yet it is ſtill called *Eloquence* in the Lawyer, though thus *unjuſtly* employed: But *Reſolution* in an *Aſſaſſin* is, according to Reaſon, quite as laudable, as Knowledge and Wiſdom exerciſed in the Defence of an *ill Cauſe*.

Were the *Intention* ſtedfaſtly conſidered, as the Meaſure of Approbation, all *Falſehood* would ſoon be out of Countenance; and an *Addreſs* in impoſing upon Mankind would be as *contemptible* in one State of Life as in another. A Couple of *Courtiers*, making Profeſſions of Eſteem, would make the ſame Figure, after Breach of Promiſe, as two *Knights of the Poſt*, convicted of Perjury. But Converſation is fallen ſo low, in Point of Morality, that, as they ſay in a Bargain, *Let the Buyer look to it*; he is the Man in Danger *who is moſt apt to believe:* He is the more likely to ſuffer, in *Commerce*, who begins with the *Obligation* of being the more ready to enter into it.

Of INJURY.

1. INJURY is the *Bane* of Friendſhip, and all *mutual* Engagements.

2. It is doing *Injuſtice* to a Man unwilling to receive it.

3. It conſiſts in *charging* falſely, as well as *detracting* unduly.

4. To charge a Man *falſely* with Evil, of which he is ignorant, putting ſtolen Goods upon him, and ſtealing his *Property*, is a *double Injury*; beginning with *Murder*, and ending with *Theft:* The firſt like *biting* before he *barks*; and the other like *barking*, and *biting* afterwards.

5. All the *Miſchief* in the World proceeds from the doing, or apprehending, *Wrong*, from Men, *originally* unjuſt or ſuſpicious.

6. Were *Right* and *Juſtice* exactly preſerved, our Earth would be a *Paradiſe*; and the Lives of Men, now, would be like *primitive* Innocency: *Felicity* would ſtill vouchſafe to dwell with us, that now, like *Aſtrea*, is fled to Heaven.

7. Were *Injuries* forborn, how many Journies and Attendancies, how much Treaſure, now expended, and Trouble undergone, would be ſaved! No crouded Throngs need fill the *Law Tribunals*; no Need of *armed Juſtice* to ſecure us in our Rights and Properties.

8. Every *Injury* committed, is the Beginning of a *petty War*; often occaſioning a *Breach* of two Commandments, *killing* and *ſtealing*.

9. To avoid Evil, and do Good, is one conjunctive Precept.

10. The *Prieſt* and *Levite* were both cenſured, though they did no *Injury* to the Man that fell among the *Thieves*, becauſe they paſſed by him without doing him Good in his *wounded* Condition.

11. *Uncharitableneſs* is an Injury, when it is in our Power to do *Good*.

12. Some *Callings* are difficult to hold, and be juſt.

13. For Man, by all the Laws of *Creation*, *Policy*, and *Religion*, is reſtrained to live on what is *juſtly* his own, acquired by his *fair Induſtry*; whence his Bleſſing proceeds.

14. Who act on contrary *Principles* may flouriſh for a While, but, like the *counteracting* Wheel of a Machine, to the general Motion and End of the Whole, goes to Decay, or is rejected.

15. *Injury* was a deteſtable Vice among the *Romans*; their Virtue was above it in all *Emergencies*.

16. When King *Pyrrhus* preſſed, with his Army, even to the Gates of *Rome*, and his Phyſician offered to poiſon him, to gratify the *Romans*, they ſent the *perfidious* Man, bound, to his Maſter, with an Account of it.

17. When *C. Domitius*, the Tribune, intended to cite Prince *Scaurus* before the public *Tribunal*, he cropt off the Ears of that Prince's Servant, and ſealed up his Lips, and, in that Condition, ſent him to his Maſter, for offering to diſcover ſo much of his Secrets as would condemn him.

18. Though *Religion* is pure and peaceable, yet Wrong and Injury ſcandaliſe its *Profeſſors*.

19. *Injury* is the *Fuel* of War; and, by doing it, we help our Adverſary, and war againſt ourſelves.

20. God is engaged on the Side of the *injured Party*; diſadvantageouſly, by our Injuſtice, againſt our *own Cauſe*.

21. *Injury* is done, and ſometimes *Good* comes of it.

22. *Juſtice* requires no *Injury* to procure it Victory; which has ever been *diſdained* by juſt and gallant Perſons of Honour, however plauſible and practicable it may ſeem to ſome *Heroes*.

23. He that tolerates himſelf to do *Injuries*, makes his *Favours* to be ſuſpected for *Snares*.

24. He is ſo far from being a *propitious Star*, that the *Malevolence* of a *Comet*, preſaging Deſtruction, harbours in him.

25. Who is not *principled* to forbear doing an *Injury*, is far from being inclined to do *Good*; but is ready to ſtep over the *Threſhold* of Oppreſſion.

26. He deceives himſelf, who thinks to gain Favour, either with God or Man, who makes *Religion* conſiſt in the *Formalities* and *Exteriors* of it, and gives a Looſe to the Reins of *Injury*; ſeeing that he is an Enemy to both, in diſhonouring God, and hurting Man.

27. *Socrates'* Opinion was, *rather to ſuffer Wrong, than do it to another: That he might be a good Man who ſuffered it, but muſt be a bad one that offered it.*

Of *civil* CONTRACT *and* JUSTICE.

1. WE ought *religiouſly* to keep all ſolemn Promiſes and Covenants, though made to our *Diſadvantage*; notwithſtanding afterwards we perceive they might have been *better* ordered.

2. No preceding ſolemn *Act* ſhould be altered by any after *Accident*.

3. Nothing ſhould make Men break their ſolemn *Promiſe* made one to another.

4. *Civil Contract* is a Part of *Juſtice*, depending on the Laws of Man *directly*; and upon the Laws of God only by Conſequence and *indirect* Reaſon.

5. From *civil Laws*, or private Agreements, civil *Contract* takes its Eſtimate and Meaſures.

6. In making *Contracts*, a Multitude of Words ſhould not be uſed; ſince the Buſineſs of all Bargains is *ſummed up* in *few* Sentences.

7. In *Contracts*, he that ſpeaks *leaſt* is ever underſtood to mean *faireſt*, as having the *feweſt* Opportunities to deceive.

8. *Equivocate* neither in ſmall or great Matters.

9. Pretend not what is *falſe* to conceal what is *true*.

10. Let the Meaſure of your *Affirmation* or *Denial* be the plain and direct Meaning of your *Contract*.

11. In bargaining, you muſt not only avoid what is *falſe*, but alſo what is *deceitful*.

Of HONESTY *and* OPPRESSION.

1. A Man ought not in *Conſcience* to take Wages, or a Fee, for executing a Buſineſs or Work, that he is ſenſible is *not in his Power* to perform.

2. No Man ſhould undertake a Buſineſs for another, without declaring before Hand his ſincere Opinion of the Proſpect he has of the Advantage or Diſadvantage therefrom; that the Perſon, for whom he is to undertake it, may be at his *Diſcretion*, either to entertain or decline employing him.

3. A *generous-minded* and *honeſt* Man will not be prevailed upon to raiſe the *Price* of his *Rents*, to the Diſtreſs of *Families*, in Regard either of *Accident*, or *Advantage* to himſelf.

4. A *Prince* muſt be treated *conſcionably* as well as a common Perſon; and a *Beggar* muſt be treated *juſtly* as well as a *Prince*.

5. To *poor* Perſons, the utmoſt Meaſure and Extent of Juſtice is *unmerciful*, which to the *rich* is *inoffenſive* and *juſt*; becauſe he wants neither Mercy or Remiſſion.

6. Men ſhould not, on Account of *Poverty*, become oppreſſive and cruel in their Bargains with Others.

7. Men ſhould ſhelter their *Eſtates* under the *Influence* and *Protection* of the *divine Providence*; leaving the Intereſt and Succeſs therein (after neceſſary human Precautions) to *God*, for procuring Bleſſing and Recompence.

8. If this *Reſignation* to *divine Providence* cures not Poverty, it will take away the *Evil* of it, and eaſe Trouble.

9. By the Dictates of *Conſcience*, we cannot (*whatever we may pretend*) appropriate, to our *private* Uſe, what God, or the *Republic*, has made or intended for the *common Good*; for ſuch an Act would be againſt *Juſtice* and *Charity*.

10. When the King of *Naples incloſed* the Gardens of *Oenetria*, where the beſt *Manna* of *Calabria* uſed to fall, that no Man might gather it without *paying Tribute*, God's Diſpleaſure at the Action appeared, in its ceaſing to fall till the Tax was taken off, and then it fell as before.

11. When the *Procurators* of King *Antigonus* laid a Tribute on the Sick that came to drink the healing Waters of *Edepſum*, (being the Bounty of God's Providence,) they immediately *dried up*; which admoniſhes Men againſt uſing Oppreſſion.

12. St. *Paul* ſaith, 1 *Theſſ.* iv. 6. *Let no Man go beyond or defraud his Brother in any Matter; becauſe the Lord is the Avenger of all ſuch.*

13. It is Nothing *new* to obſerve, that ſuch as have *oppreſſed* or *defrauded* others, have themſelves felt the *ill* Conſequences of their *unjuſt* Dealings: This *Uncleanneſs* of Oppreſſion and unjuſt Dealings has proved as a *Canker-Worm*, eating up all the other Increaſe.

14. This Kind of *Injuſtice* has procured *Beggary*, and a declining Eſtate; with an ill Name and Curſes from the *Injured!* Or ſometimes procured a fooliſh or prodigal Heir to *ſcatter* abroad an *ill-gotten* plentiful Eſtate; and is a *Vice* that carries with it its own Puniſhment, and therefore ſhould be carefully avoided.

Of LIBERTY.

1. LIBERTY is the *Deſire* of all Creatures.

2. *Nature* is burthenſome under *Reſtraint*.

3. Our daily *Supplies* would be taſteleſs without *Liberty*.

4. *Liberty* is clear of private Dependences.

5. It conſiſts in a Latitude of Practice, within the Limits of *Law* and *Religion*.

6. He, who is Maſter of his *Time*, can chuſe his *Employ* and *Diverſions*.

7. He who can *avoid* diſagreeable Company, when his Humour or Occaſion requires it, is as *free* as, in Reaſon, he can wiſh for.

8. *Servitude*, from Neceſſity, ſupplies the *Wants* of Nature.

9. It is only to be borne and diſpenſed with when *unavoidable*.

10. Death, in Time, will knock off the *Chains* of *Servitude*, and ſet all Men at *Liberty*.

11. When the *Neceſſities* of Life can be had a *cheaper* Way, it is great Folly to purchaſe them at the Loſs of *Liberty*.

12. He who *ſacrifices* his Liberty to his *Palate* is a Slave to Voluptuouſneſs and himſelf.

13. Some Men derive *Liberty* from any *Condition*, and think themſelves *freer* than thoſe they ſerve.

14. A *Cynic* being aſked how he could live a Servant to *Zeniades*, anſwered, *That a Lion does not ſerve his Keeper, but his Keeper* ſerves him.

15. When *Diogenes* was told that *Caliſthenes* appeared ſplendid, and dined with *Alexander*, (the King,) he anſwered, *That* Caliſthenes *was forced to dine when* Alexander *pleaſed, but himſelf when* Diogenes *pleaſed.*

16. *Servitude* is more troubleſome than Nature ever intended it, by the wanton Exerciſe of Power over Inferiors.

17. *Liberty* affords great Opportunities for the Improvement of *Reaſon.*

18. It gives Leiſure for *Reading* and *Contemplation*; for Acquaintance with Men and Things; and for looking into the *Hiſtory* of Nature and of the Times.

19. He that has the *Buſineſs* of Life at his own *Diſpoſal*, and has none to account to but *God* and *himſelf*, for the Minutes that are bearing him off in the *Stream* running to *Eternity*, may be happy without *ſlaving* for it.

20. He need not flatter the *Vain*, be tired of the *Impertinent*, nor ſtand in *Awe* of the Courteſy of *Knavery* and *Folly*.

21. To be at one's own *Diſpoſal*, is to lie under no *Anxiety* for Fear of *diſpleaſing others*.

22. To be *free*, is to have no better or changeable Temper to ſtruggle with, and to be *independent* of any one's Viſage.

23. When a *Smile* will not exalt, nor a *Frown* amaze, ſuch an one's Fortune is fixed higher than when *affected with*, or *concerned at*, the Pleaſure of the *Nice* and *Variable*.

24. The Independency of *Liberty* gives Eaſe to the Mind, and Vigour for *Imagination* and *Enterprize*.

25. The Man of *Freedom* has Nothing to ſtrike a Damp upon his *Genius*, overawe his Thoughts, or check the Range of his Fancy.

26. He that is *embaraſſed* in his *Liberty* is apt to be wavering in his Purſuits and Actions, palled and diſpirited in his Conceptions and Humour; ſo that you may read his *Condition* in his Behaviour and Converſation.

27. When *Greece* was firſt enſlaved under the *Macedonians*, and next under the *Romans*, *Longinus* obſerves, that there were no conſiderable *Orators* found among the *Greeks*; as if the Channels of *Rhetoric* were dried up, the Force of *Demoſthenes* ſpent, and the *Springs* of the *Muſes* exhauſted, with the languid and expired Government.

28. The active *Spirit* of Man ſtruggles, in the narrow Incloſure of its *Clay-Manſion*, to enlarge its *Liberty*.

29. All *Things* aſpire to *Liberty* and an *uncontrouled Freedom*; for every Creature is prompted by Nature to be like THAT whence it is derived.

30. Look over all the World, and you will ſee *all Things*, as far as they can, endeavouring to imitate the ALMIGHTY.

31. The *Liberty* of the human Spirit exults in a Freedom that cannot be *reſtrained*.

32. If a Perſon were Nothing but *Soul*, he need not be under any *Subjection* to others for ſupporting it.

33. A *Body* is a very *indigent* Sort of Thing, and cannot ſubſiſt upon its own Growth, but is in *Need* of continual *Supplies*.

34. *Eating* and *Drinking* are therefore a cruel *Check* upon the *Dignities* of Men, joſtle them out of the Line of *Liberty*, and make them hold their *Lives* by a *ſervile Tenure*; ſo that each Perſon muſt learn the Leſſon of *Content*, in that Station wherein *Providence* has placed him.

35. *Liberty* is exceedingly to be *prized*; but, where *Neceſſity* reſtrains it, a calm Temper of Mind muſt ſupply its *Defect*, by making a Virtue of that *Neceſſity*.

36. Enjoying perfect *Liberty*, you may reſt *happy* in the Privileges ariſing from it.

37. If you want perfect *Liberty*, Melancholy ſhould not be ſuffered to generate a *viperous* Brood of *Diſcontents* in your Breaſt.

38. *Content* yourſelf, as much as you can, in the *Defect of Liberty*.

39. In any State of *Liberty*, higher or lower, *Content* ſhould never be a *Stranger*.

Miſcellaneous OBSERVATIONS.

1. RICHES (being the *contrary* Extreme to *Poverty)* are generally attended with *proportionable* Troubles.

2. The Poſſeſſors of *great Riches* often ſacrifice their *Healths* to their Abundance; and, by an ill Uſe of *Plenty*, find no *Satiſfaction.*

3. Honours and Promotions, Profits and Diſtinctions, among Men, will be reduced to an *Equality* in a few Years.

4. *Luxury* and *Intemperance*, *Pride* and *Indolence*, are the *grand* Enemies to Reaſon and Underſtanding.

5. The *larger* the Acquaintance, (where the *Heart* is divided among ſo *many*,) the leſs the *Sincerity* and *Friendſhip* will be found for *any*.

6. An *unfit* Acquaintance is an *unfit* Friend.

7. The *Phœnix*, *black Swan*, *Unicorn*, *Philoſopher's Stone*, and *Maſquerade-Longitude*, are five great *Rarities* not yet diſcovered.

8. A *little* great Man, and a *great* little Man, are two great Prodigies.

9. *Fame*, gathering as it flies; a *Muſquet Ball*, that kills before the Report is heard; *Light*, that flies over immenſe Space in 6 or 7 Minutes; and *Lightning*, that kills, in an Inſtant, the Child in the Womb, without hurting the Mother, and melts Gold in a Purſe, without ſingeing it, or damaging the Owner, are five wonderful Effects of *Swiftneſs*.

PART II.

ANSWERS *to all the* ÆNIGMAS *in laſt Year's* PALLADIUM.

I. A FEATHER.
II. NUT-CRACKERS.
III. BEAUTY.
IV. A LEVEL.
V. A NUT.
VI. ABBA, ſignifying *Father*.
VII. The Letter X.
VIII. A Seaman's NEEDLE and COMPASS.
IX. A Pair of TONGS.
Prize. A CHURN.

All the above were anſwered by Mr. *I. Scott*, of *Cawthorne*; alſo by Mr. *Richard Dalton*, of *Pool.*

All the ÆNIGMAS *anſwered by* Gemini, *of* Morpeth.

To SINCERITY.

1. Thou Bond of Friendſhip, Bond of Love!
What *Beauties* flow from thee! 3.
Thee, all the Good and Wiſe approve,
O bleſt Sincerity!

2. Inſpir'd by thee, we dare to ſoar,
Our grateful Homage pay,
To Him, Creation muſt adore,
And humbly cry *Abba!* 6.

3. The homely Dame, who tends her *Churn*, *Prize.*
Connubial Joys may find,
When Thou each Action doſt adorn,
Poſſeſſing Heart and Mind.

4. 'Tis by the *Level* we muſt try 4.
A Friend, before we truſt;
Like a *crackt Nut*, we throw him by, 2. 5.
When to Thee he's unjuſt.*

---

* *Broken Friendſhip, like broken China, will never ring well, whoever firſt divides the original Cement.*

5. Crabbed as *X*, or Critic's *Quill*, 7. 1.
And nipping as the *Tongs*, 9.
From Thee Inſtruction we inſtil,
And Warning of our Wrongs!
6. True as the *Needle*, if to Thee 8.
Our ev'ry Action tend;
The Chriſtian, Friend, and Critic, ſee,
Are happy in the End.

6. INSINCERITY, *and the* CROSSES* *of Friendſhip.* *By Miſs* Polly Stow.

* *7th Ænigma.*

Rara Avis in Terris, nigroque ſimillima Cygno.

I.
WHERE is the true diſintereſted Friend,
Inclin'd to ſerve you, without private End?
Acquaintance num'rous are found ev'ry where,
But a true Friend is, like the Phœnix, rare!

II.
Friendſhip is of brittle Kind,
And, when broken, ſeldom join'd;
But the Flaw will ſtill appear;
China broke, though join'd with Skill,
Be the Cement what it will,
Never can ring ſound and clear.

The *Ænigmas* were ingeniouſly anſwered, in Verſe, by a *Highland* Gentleman; alſo by Mr. *John Broadbent*, of *Saddleworth*, *Yorkſhire*; Mr. *Giles Lacey*, of *Bridp* , Mr. *Stephen Hartley*, of *Sowerby-Bridge*; Mr. *James Muſcroft*, of *Rotherham*, *Yorkſhire*; a Gentleman, who ſigns *Knowlittle*, anſwered the *Prize*; Mr. *Robert Arnold*, of *Brinſworth*, near *Rotherham*, anſwered moſt of the Ænigmas; Mr. *Stuckfield*, humouroufly, moſt of the Ænigmas; Mr. *J. Bailey*, all, in Verſe; Mr. *William Swift*, of *Stow*, on *Diſappointment*, all; Mr. *John Lynn*, of *Ruffle*, *Northumberland*, who propoſed ſome new *Ænigmas* and *Rebuſes*, we had not Room for. Mr. *John Wigley*, of *Berington*, anſwered moſt of the *Ænigmas* in Verſe, and propoſed a new *Ænigma*, on King *Aſa*, reading the ſame backward as forward, which we are forced to omit, having already too many of *that Sort* this Year. *Elizabeth Gr--nt* anſwered them, and propoſed a *new Rebus* we have not Room to inſert. Mrs. *Margaret Gr--t* anſwered the ſame; as did *Titus Veſpaſian*, and a *Drummer*; Meſſrs *Goodlad* and *Harland* in Verſification; *J. B. L.* and *W. Sedgwick*, of *Cottingham* Free-School; Mr. *Richard Judſon*, of *Beverly*, in Verſification, all; Mr. *Joſeph Cowley*, of Mr. *Shaw*'s School, *Cheſterfield*, *Derbyſhire*, moſt; Mr. *J. H.* of *Lewes*, *Suſſex*; and Mr. *James Potts*, Teacher of Languages and Mathematics, at *Bedlington*, *Northumberland*.

All the ÆNIGMAS *anſwered by Mrs.* Margaret Gr--t.
Arrow, *Crackers*, *Level*, *Nut*, *Abba*, and *Beauty* bright,
The Letter *X*, *Compaſs-Needle*, *Tongs*, and *Churn*, bring all to Light.

Mr. Alexander Rowe, *of* Cornwall, *anſwers the* ÆNIGMAS *thus.*
Pluma, *Libella*, *Forceps*, et *Nucifrangibula*; 1. 4. 9. 2.
Venuſtas, *Crux*, *Nux*, *Vates*, cum *Pyxide nautica*. 3. 7. 5. 6. 8.

Mr. *Swift*'s Catalogue of Authors, though poetically and inimitably deſcribed, is not ſorted for Company with each other; *Barrow* does not ſort with

Partridge, the Almanac-Maker, nor *Homer* with *Heath* and *Kettlewell*; and therefore we omit the Inſertion.

An Anſwer to all the ÆNIGMAS, *in a Morning* SOLILOQUY. *By Mr.* Iſaac Gumley, *of* Counteſthorpe, Leiceſterſhire.

NOW roſy Morn had op'd the Gates of Light,
And chas'd away the Phantom of the Night;
The tuneful Birds awake to hail the Day,
And pearly Dew-Drops ornament the Spray.
The Flowers e*X*pand, and with freſh *Beauty* ſhine, 7. 3.
And to the Breeze their Fragrancy reſign;
The dazzling Sun peeps o'er the Eaſtern Hills,
And ſees his Face reflected by the Rills:
With ardent Zeal he climbs the azure Skies,
And bids the Sluggard from his Bed ariſe.
The ruſtic Tribes o'erſpread the *Level* Plains, 4.
(Indulgent Nymphs and truly honeſt Swains,)
To mow the Graſs, and turn the dulcet Hay,
And, in hard Labour, ſpend the coming Day.
Contentment's theirs, though void of ſhining Wealth,
And ev'ry Face is crimſon'd o'er with Health.
See youthful *Anna*, chearful as the Day, 6.
Round whom ten Thouſand Thouſand Graces play;
Health paints her Cheeks with all its lovely Dies,
And true Good-Nature ſparkles in her Eyes!
What though no ruſtling Silks the Maid adorn,
Nor Gold, nor Gems, from diſtant Regions borne?
She's far more happy, far more bleſt than they,
Who madly ſquander all their Time away
In pompous Balls, and courtly Maſquerades,
Luxurious Feaſts, and Mirth that quickly fades;
At Home the *Churn*-Daſh luſtily ſhe wields, *Prize.*
Or with her Rake en*Compaſſes* the Fields; 8.
Fields, where the gentle cooling Breezes blow,
And *Nuts* and wild Fruits in Profuſion grow; 5.
Where hoſtile Armies, blacken'd o'er with Rage,
With Swords and *Bucklers** never now engage. 1.
There from the *Teazing* Throng I oft retire, 9. *Tea-Tongs.*
Who nought but Noiſe and turbid Scenes admire;
There taſte the Fragrance of the balmy Breeze,
That waves the Flow'rs, and breathes among the Trees.
Ere from his Bed bright *Phœbus* doth ariſe,
When ſweet Aurora tinges o'er the Skies,
Have I walk'd there, in thoughtful Mood along,
And heard the Lark begin his early Song.
There too, when Noon dries up the tender Flow'rs,
And Light and Heat in great Profuſion ſhow'rs,
I oft recline beneath the cooling Shade,
By bruſhy Elms and oaken Branches made.
There too, I oft repair, at ſober Eve,
And, for the Fields, the noiſy Village leave.
In ev'ry Seaſon, how amaz'd am I!
New Wonders riſe, freſh Beauties ſtrike the Eye!

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* *Alluding to the Plume of Feathers thereon.*

The Heav'ns, the Waters, and the verdant Sod,
And ev'ry Thing around, proclaim a God!
A God beneficent, a God moſt wiſe,
Who loves his Creatures, and their Wants ſupplies.
Let thoughtleſs Worldlings love the noiſy Town,
And loſe their Peace to come at high Renown;
To Wealth and Honour their Devotion pay,
And ſmiling Pleaſure's guileful Lures obey;
From ſuch vain Joys, O God, divert my Mind,
And let me be to meditate inclin'd;
Illume my Soul with one celeſtial Ray,
And I'll to Thee my ſole Devotion pay.

All the ÆNIGMAS *anſwered by the Rev.* Thomas Vaughan, M. A. *at* Morpeth, Northumberland.

LYSANDER *lamenting the Departure of* ANNA. *An* ODE.

1. SILENT as yielding Maids conſent,
With Love and Care oppreſs'd,
Lyſander to his *Anna* went, 6.
As Troilus to his Creſs'd.
The Time was come, ſhe muſt depart,
He, ſtruck with Anguiſh, Pain, and Smart,
Did thus unfold his panting Heart,
In broken Tones diſtreſs'd.

2. Should Jove ſet me in Atlas' Place,
And lay Heaven's Weight upon me,
Such *Croſſes* would not me depreſs, 7. *Alluding to X.*
So much as parting from thee!
By that ſweet Face, that Form divine,
And Breaſts that do my Soul enſhrine,
Eaſe, Pleaſure, all, I muſt reſign,
If Fate ſuch Hardſhips doom me.

3. Ye Powers! what does your Rage provoke,
My Love from me to ſever?
This ſad, ſurpriſing, fatal, Stroke
Does blaſt my Hopes for ever.
'Tis like the Circling of the Sun,
When parting from the frigid Zone,
And I in Greenland left alone,
In dark Deſpair to wither.

4. Like Atho's Hares, or Hybla's Bees,
Admirers flock'd to move her!
Till Perſeverance, by Degrees,
Made me the happy Lover.
One Nut-Crack *Night I trip'd along,* 5. 2.
Gazing with the adoring Throng,
(She'd churning *been,) her charming Tongue* Prize.
Would make a Saint turn Rover.

5. Love *level*'d Enſigns at my Breaſt, 4.
And in his Train did liſt me;
Then with her Love did me inveſt;
What Pow'r could then reſiſt me?
Who would withſtand, or diſapprove,
Thy Will and Pleaſure, mighty Love!
I would not change my Place with Jove,
While ſhe with Love careſt me.

6. It would convert an Infidel,
Turn Saints from Superſtition,
Make ev'ry Hermit run to Hell,
Change Prayers into Ambition,
And raiſe an Anch'rite from his Grave,
One pleaſant Look from her to have,
Her Frowns can kill, her Smiles can ſave,
Beyond the beſt Phyſician.
7. When, in her Face, a civil War
Burſts out in am'rous Flaſhes,
And when the white and red Roſe jar,
'Twixt Fortitude and Bluſhes,
Stout Heroes 'tis enough to kill;
But, when the Armies both ſtand ſtill,
Thrice happy he, who, at his Will,
Into the Pillage ruſhes.
8. Upon her Breaſts two Hills advance,
Inviting Hearts for ever;
Where all the Nymphs and Graces dance,
And Love reclines his *Quiver*. 1. *Feathered.*
The Curtain's drawn on what's below,
Aſtrology can never ſhew
The Thing that I could wiſh to know;
But Rev'rence curbs Endeavour.
9. But oh! how ſweet's a Soul enſhrin'd
In this celeſtial Creature!
An Angel's Face, a virtuous Mind,
The utmoſt Stage of Nature!
The other Day, when we drank Tea,
No Tongs *we us'd — the Sugar ſhe*
With Fingers help'd like Ivory,
No Goddeſs's were brighter.
10. Such Paradiſes of Delight!
Shall Fate from me unhand them?
Where Wit and *Beauty* do unite! 3.
What Rebel can withſtand them?
My choiceſt Bliſs I'll not forego,
Though Fortune frown, and Friends ſay no;
Our Loves are's Needle *fix'd, and ſo* 8.
There's None ſhall countermand them.

All the ÆNIGMAS *anſwered by Mr.* J. Bayley, *of* Middleton, Yorkſhire.

A *Beauty* dwells in our Town, 3.
Her Colour is of the *Nut* Brown; 5.
The Toaſt of all her darling Sex,
Her Name ends with the Letter *X*. 7.
To Bus'neſs ſhe knows what belongs,
Can handle *Needle*, *Churn*, or *Tongs*. 8. *Prize*. 9.
Her *Father* is poſſeſs'd of clear 6.
Three Times five Hundred Pounds a Year:
And, as *Cracks* go, ſhe will be found 2.
A Fortune good as any round.
— But in a Whiſper I'll impart,
Cupid has *level'd* ſo his *Dart*, } 4. 1.
That ſhe is Miſtreſs of my Heart.

The **Prize-Ænigma** *anſwered by the Rev.* Thomas Vaughan, *of* Morpeth, Northumberland.

YOUR *Churn*, O Sadler, does produce
A Thing of univerſal Uſe;
While Sophy's Hand-Daſh Butter makes,
She of the pleaſing Toil partakes.
Now, if I've made the Riddle clear,
I hope to get a Prize next Year.

The **Prize-Ænigma** *anſwered by Miſs* Polly Stow.

I for the Prize will take my Turn,
The well-wrought Subject is a *Churn*.

The School-Boy's Morning Exerciſe. On Dr. LEVEL's* **Sudorific.** *By the* Palladium-Author, junior.

* *He levels all, both great and ſmall.* 4*th Ænigma.*

1. O' th' *Faculty*, One, wiſe and grave,
   Call'd to a Patient's Preſervation,
Declar'd that he his Life could ſave
   Only by raiſing *Perſpiration*.
2. *Preſcription* on *Preſcription*'s tried,
   To put the *Patient* in a Sweat;
The ſtubborn *Caſe* Relief denied,
   And did the *Doctor*'s Skill defeat.
3. The *Patient*, driven to *Deſpair*,
   Said, *Doctor*, let me have your *Bill*,
And you'll ſoon ſee what *Hopes* there are —
   If *that* don't *ſweat* me, *Nothing* will!

ANSWERS *to the* QUERES *in laſt Year's* PALLADIUM.

I. Quere 222, *anſwered by Mr.* Alexander Rowe, *of* Cornwall.

10 ANY where, on the *Sea*, under the *Equinoctial*, or at the *Equator*; for there the Power of Gravity is *leſs* than at the Poles, where the Diameter of the Earth's *oblate* ſpheroidal Figure is the *ſhorteſt*, and conſequently *Attraction* greateſt.

Mr. *George Hicks*, of *Reedneſs*, ſays, that a *Ship* will have the *leaſt* Preſſure upon the Water at the *Equator*, and the *greateſt* at either of the *Poles*; occaſioned by the Earth's *diurnal* Motion, and the Diminution of the Earth's *centrifugal* Force at the Poles.

II. Quere 223, *anſwered by Mrs.* Margaret Gr--t.

MOST of the *Churches* were firſt built due *Eaſt and Weſt*; which granted, and the preſent Declination being given, (they declining a Degree in 70 Years,) the Time of their being firſt built is *thence* eaſily and readily determined.

III. Quere 224, *anſwered by* Medicus.

WHEN Men lived to a greater Age in antient Times, the Time of a Woman's Pregnancy (to perfect a more durable Birth) might be greater than at 11 preſent, 9 Months. Some Children have been born at the End of 7 or 8 Months in *England*, but ſeldom lived long, or not ſo long as thoſe born at their full Time. However, 9 *Calendar* Months, of $30\frac{1}{2}$ Days each, making about 275 Days, are not much *unequal* to 10 Months of 28 Days each, making 280 Days; ſo that a *Difference* of near a Month, in the Time of reckoning a

Woman's *Pregnancy*, will ariſe from the *different* Way of reckoning the Time of 1 Month; from whence the *Miſtake* of a Month in the Time of *Pregnancy*, (10 for 9 Months,) by *Leutychides*, might proceed.

Moſt *Animals* (except Mankind) have ſtated *Seaſons* for Procreation. The Females go with Young, ſome a longer, ſome a ſhorter, Time. *Mares* go from 11 to 12 Months; *Cows* and *Hinds* go 9 Months, the ſame as Women; *Foxes* and *Wolves* 5 Months; *Bitches* go only 7 Weeks; *Cats*, 9 Weeks; and *Rabbits* 31 Days. Moſt *Birds* are hatched in 21 Days; the *Canary-Birds*, and ſome others, are hatched in 13 or 14 Days. Hence there appears to be an endleſs Variety in the Time, as well as in the Manner, of the Generation of Animals.

IV. QUERE 225, *anſwered by* Grammaticus.

THE Term, *equivocal*, denotes *literally* a *doubtful* or *double* Meaning, and muſt denote the *ſame* when applied to *Generation*; making a doubtful Kind of Generation. Whereas *ſpontaneous* ſignifies *voluntary*, *of its own Accord*, *without Compulſion*; making *ſpontaneous Generation* to ſignify the Production of *Animals* and *Plants*, without the Cauſe of *Sexes* and *Semen*; and therefore *equivocal* and *ſpontaneous* Generation imply *differently*; and conſequently *equivocal*, or doubtful, is *improperly* ſubſtituted for *ſpontaneous*, or ſelf-cauſed, of its own Accord.

ANSWERS *to the* REBUSES *in laſt Year's* PALLADIUM.

I. DARTMOUTH-Town.
II. A *philoſophical* TRAVELLER, or *Legerdemain* JUGLER.
III. WALLINGTON-Town.
IV. EMERSON.
V. WESTRAM-Town.

I. REBUS *anſwered by Mr.* Iſaac Gumley, *of* Counteſthorpe, Leiceſterſhire.

WITH my Hand, O Friend Lacey, I'll readily greet you,
If ever at *Dartmouth* I happen to meet you.

I. and IV. REBUS *anſwered by Mr.* I. Stuckfield, *of* Stepney.

THE *Mouth*,* more fell than Cupid's *Dart*, 1. *Dartmouth.*
A pois'nous Rancour may impart; * *Backbiting.*
The libelling Tribe,† without Diſpute, † *Private Libellers.*
May find a Fable that will ſuit,
If they the Maſtiff-Dog apply,
Or elſe the Coach-Wheel and the Fly.
They'll ſee the Moral does explain
A feeble or diſtemper'd Brain. —
Then let them ſnarl — they cannot bite —
But, like Aſſaſſins in the Night,
They, when *bright Sol* his Beams diſplays, 4. *Alluding to an*
To their known Holes will ſneak their Ways. *eminent Author.*

Mr. *I. Scott*, of *Cawthorne*, anſwered 1. 3. 4. Mr. *Stephen Hartley*, 1. 2. 3. 4. 5. Mr. *William Swift*, 1. 5. Mr. *Knowlittle*, 1. Mr. *William Oliver*, 1, 4. *Gemini*, and Mr. *Widdrington Bourne*, of *Morpeth*, 1. 2. 3. 4. 5. *J. B. L.* and *W. Sedgwick*, of *Cottingham* School, 1. 2. 3. 4. who ſay the firſt has been often propoſed and ſolved. Mr. *Alexander Rowe*, 1. 2. 3. 4. 5. Miſs *Sally Hill*, of *Hill*, near *Gibſide*, *Newcaſtle*, 1. 3. 5. Mr. *James Potts*, of *Bedlington*, *Northumberland*, all. Mr. *Dalton*, all.

Mr. William Swift, *of* Stow, *anſwers the 2d* Rebus *thus.*

SAGE *Merlin** and Hector are quite out of Date,
'Tis Pegaſus Royal that now wins the Plate.

* *Alluding to a philoſophical Traveller, or Jugler, with a Budget.*

II. Rebus *anſwered by* Martinus Merlinus.

OF *Longitude* I take no Part in,
Becauſe 'tis known to be uncertain.
Let th' *Man o'th' Moon,* among the *Witches,*
Be *maſk'd,* and wear his *little Breeches;*
His *Sibyl-Oracles* intrude,
And *Libels* print for Longitude:
Let *necromantic* Obſervators
Be his *Aſſiſtant Operators,*
Hight *Whacum* and Sir *Sydrophel!* †
Who, by the *Stars,* ſo much can tell!
Bring *Sophy,* with her Hat and Feather,
And *Yea* and *Nay,* and all together!

† *Alluding to Travellers, or Legerdemain Juglers.*

ANSWERS *to the* PARADOXES *in laſt Year's* PALLADIUM.

I. Paradox *anſwered by Mr.* Dalton, *of* Pool.

ANY two Places on the Globe, (not lying under the *Equinoctial,)* having *Latitude,* will have the Property mentioned. For though the Port B bears, by the *Compaſs,* due *Weſt* from the Port A, yet a *Ship,* ſteering continually due *Weſt* from A, cannot arrive at B; becauſe, (not ſailing on the *Equator,)* in ſailing from any Place directly to another, the Courſe or Bearing by the *Compaſs* continually alters; and therefore, ſailing on the *ſame Courſe* with the firſt Bearing will never carry a Ship to that Place.

Mr. *I. H.* of *Lewes, Suſſex,* anſwered it; as did Mr. *Alexander Rowe.*

II. Paradox *anſwered by* Philo-Sophia.

MICHAEL MAN, Eſq. married a *Lady,* who was a Clergyman's Daughter, making her *Name* the ſame with his own. — *N. B.* He had Iſſue by her one Son and two Daughters.

The ſame anſwered by Mr. Iſaac Gumley, *of* Counteſthorpe, Leiceſterſhire.

To the Propoſer.

If *Man* is your *Name,* then your Wife is a *Man;*
So do what you can,
As you ſay you began,
And let it be *ſeen* that you're truly a *Man.*

Mr. *Giles Lacey,* of *Bridport,* anſwered this *Paradox* in a *ſimilar* Manner. Mr. *I. Scott,* of *Cawthorn,* anſwered it; as did Mr. *Stephen Hartley;* Mr. *Knowlittle,* (who ſo ſigns, the Poſt-Mark *Ettering);* Mr. *I. Bayley,* of *Middleton, Yorkſhire;* Mrs. *Margaret Gr--t;* the Rev. *Thomas Vaughan,* of *Morpeth;* Mr. *Hartley,* of *Sowerby-Bridge;* *J. B. L.* and *Sedgwick,* in *Cottingham* Free-School; Mr. *J. H.* of *Lewes, Suſſex;* and Mr. *James Potts,* of *Bedlington, Northumberland.*

Mr. *Richard Dalton,* of *Pool,* informs us, that the *Palladium* and *Royal Aſtronomer* are both well received in his Part of the Country, and are encouraged by many Gentlemen of Ingenuity.

ANSWERS

ANSWERS *to the* QUESTIONS *in laſt Year's* PALLADIUM.

The Art *of Numbers is for ever* new,
And leads to Truth *through* Pleaſure's *Avenue*;
Its Reas'ning *juſt, by* Demonſtration's *Rules*,
The Guide *and* Glory *of our* Britiſh *Schools!*
Improves the Mind, embelliſhes the Man,
And makes him what no other Science can.

I. QUESTION 450, *anſwered by Mr.* Richard Dalton, *of* Pool.

LET a and $b =$ given Numbers, *reſpectively*, in the firſt and ſecond Equations. Then, from the 2d Equation, $\sqrt{y} = \frac{x^4}{b-x^3}$; which being put in the firſt, $x^2 \times \left.\overline{\frac{x^4}{b-x^3}}\right|^4 + x^5 - \left.\overline{\frac{x^4}{b-x^3}}\right|^2 = a, = 29030401312$. Solved by *Trial* and *Error*, or the *Rule of Falſe*, $x = 22 =$ Years, the Lady's *Age*; and, conſequently, $y = 7744\,l.$ her *Fortune*; *required*.

Mr. *George Coughron*, of *Newcaſtle*, elegantly ſolved it, by the ſame Equation. Who has *otherwiſe* ſolved it by a *new Improvement* of his, as follows.

From the 2d *Equation* it appears, that x muſt be *leſs* than $\left.\overline{13310}\right|^{\frac{1}{3}}$; and therefore cannot exceed 23; conſequently, from the 1ſt *Equation*, y cannot be leſs than $\sqrt{29030401312}$; and therefore muſt be *greater* than 7400; but, by the 2d *Equation*, it is evidently a *ſquare Number:* And, by trying, the *ſquare Numbers* above 7400, $y = 7744\,l.$ is found to ſucceed, being the *Lady's Fortune*; and thence $x = 22$ Years, her *Age*. W. W. R.

Mr. *James Bean Lee*, and Mr. *William Sedwick*, at *Cottingham* Free-School, near *Hull*, ſolved it by a Method *ſimilar* to Mr. *Dalton*'s; as did Mr. *Richard Judſon*, of *Beverly, Yorkſhire*; Mr. *George Grant*, Pupil to Mr. *Judſon*; Mr. *Joſeph Cowley*, of Mr. *James Shaw*'s School, at *Cheſterfield, Derbyſhire*; Mr. *William Hays*, of *Frodſham, Cheſhire*; Mr. *James Muſcroft*, of *Rotherham, Yorkſhire*; Mr. *Robert Arnold*, junior, of *Brinſworth*, near *Rotherham*; Mr. *James Lamb*, Schoolmaſter, at *Aldbrough*, near *Hull*; Mr. *Robinſon*, of *Biddick*; Mr. *John Shadgett*, of *Roſs, Herefordſhire*; Mr. *Charles Burton*, of *Bretby, Derbyſhire*; Mr. *Michael Taylor*, of *Marley-Hill*, near *Newcaſtle upon Tyne*; Mr. *Thomas Goodlad* and *Levi Harland*, Pupils at *Cottingham* Free-School; Mr. *Ezekiel Walker*, of *Stapenhill, Derbyſhire*; Mr. *Alexander Rowe*, of *Reginnis, Cornwall*; Mr. *I. H.* of *Lewes, Suſſex*; which laſt Gentleman obſerves, that x cannot be above 23, by the 2d Equation; and making a *ſecond* Trial, by ſuppoſing $x = 22$, x^4 will divide by $b-x^3$, without a *Remainder*; which is the *ſquare Root* of y, *per Queſtion:* Whence $y = 7744$. Mr. *Lynn*, late a *Pitman*, but now a Teacher of School-Accompliſhments to *Britiſh* Youth, at *Bolam, Northumberland*, puts a and b for the Numbers in the 1ſt and 2d Equations, and finds $y = \frac{x^8}{\left.\overline{b-x^3}\right|^2}$, which he puts in the 2d Equation, and gets, after Reduction, $x^{11} + x^{10} - \overline{2b+1}\,x^8 + \overline{b^2+1}\,x^6 + 2bax^3 = ab^2$; whence, he finds $x = 22$, and y as before. *Gemini*, and alſo Mr. *Widdrington Bourne*, of *Morpeth*, and Mr. *John Broadbent*, of *Saddleworth*, *Yorkſhire*, ſolved it, by finding x from the 2*d Equation*, after putting the Value of y therein, in Terms of x, from the 1*ſt Equation*.

II. QUESTION 451, *anſwered by Mr.* James Nicholſon, *Mathematical Teacher, at* Stanton, Northumberland.

PUT $n = 10s.$ $r =$ given *Ratio* $= \frac{100-5}{100} = \frac{95}{100} = \frac{19}{20}$, (being the *Ratio* of 20 *Sixpences* ſpent on the 1ſt Day, to 19 ſpent on the 2d.) Then, by *Lemma* 2, *P.* 74, *Pall.* 1772, $\frac{a}{1-r} = 10l.$ *ſpent in all*, were he to live and ſpend at that Rate *for ever*. W. W. R.

Mr. *Judſon*, of *Beverly*, ſolved it in the *very ſame* Manner; as did Mr. *George Coughron*, of *Newcaſtle*; Mr. *John Scott*, of *Cawthorne*, *Yorkſhire*; Mr. *Robert Arnold*, junior, of *Brinſworth*, near *Rotherham*; Mr. *Stephen Hartley*, of *Sowerby-Bridge*; Mr. *James Lamb*, School Maſter, of *Aldborough*, near *Hull*; Mr. *James Bean Lee*, of *Cottingham* Free-School; which laſt Gentleman obſerves, that if the Perſon were to ſpend on till he ſpent on the laſt Day 1 *Farthing*, the *leaſt Engliſh Coin*, that his *Expences* would amount, in all, to 9*l.* 19*s.* 7*d.* $\frac{1}{4}$; being but 4*d.* $\frac{1}{2}$ *ſhort* of his ſpending *for ever* at that Rate. — *Gemini*, of *Morpeth*, anſwered it; as did Mr. *James Muſcroft*, of *Rotherham*; Mr. *Samuel Smith*, of *Pakefield*, near *Loeſtoff*, *Suffolk*; Mr. *Michael Taylor*, of *Marley-Hill*; Mr. *W. Wilſon*, of *Norwich*; Mr. *James Potts*, Teacher of Languages and Mathematics, at *Bedlington*, *Northumberland*.

Remark. Several other *Correſpondents* ſuppoſed, that 20 *Sixpences* were ſpent on the 1*ſt* Day, 19 on the *ſecond*, 18 on the 3*d*, *&c.* to 1 *Sixpence* on the laſt Day; in a decreaſing *arithmetical* Progreſſion of 20 Terms, (without taking into Conſideration the *Conditions* of the Queſtion of 5 *per Cent.* ſpent every Day leſs than on the former, after 10*s.* ſpent on the firſt,) whereby they *determine* the *Sum* of an *erroneous* Progreſſion $= \frac{\overline{20+1} \times 2}{2} = 210$ *Sixpences*, or 105 *Shillings*; being 5 *Guineas* ſpent, inſtead of 10*l.* (the *Sum* of the *infinitely-decreaſing geometrical* Progreſſion,) the *true Anſwer*.

A ſhort RULE *for ſumming an infinitely-decreaſing geometrical Progreſſion, univerſally.*

Divide the *Square* of the *firſt* Term by the *Difference* of the *firſt* and *ſecond* Terms, and the *Quotient* will be the *true Anſwer*. For, by the *Lemma*, P. 74, *Pall.* 1772, the *Sum* $= \frac{a}{1-r} = \frac{a}{1-\frac{e}{a}}$, ($e$ being the ſecond Term, and r, the *Ratio*, $= \frac{e}{a}$) which *reduces* to $\frac{aa}{a-e}$, the *Rule*. —— *Pal. Author*.

III. QUESTION 252, *anſwered by the* Palladium-Author.

BY the *common Rule*, (*ſee Pall.* 1771. *P.* 37,) the *Product*, divided by the *Difference* of the Times of Revolution, of two Hands, (ſetting out together and moving the ſame Way,) will give the *exact* Time of their next *Conjunction*; conſequently the *Half of that Time* will be the *exact* Time of their next *Oppoſition*.

Hence, $\frac{1^b\frac{2}{3} \times 1^b\frac{1}{2}}{1^b\frac{2}{3} - 1^b\frac{1}{2}} = \frac{1}{6})\frac{15}{6}(= 15$ Hours, the *Quotient*, when *both Hands* are next together, or in *Conjunction*. Conſequently they will be next in *Oppoſition*, or *Half* a Revolution aſunder, in the *Half* of that Time, or $7\frac{1}{2}$ Hours, from the Time of their ſetting out together and *moving the ſame Way*. But moving the *contrary Way*, when they firſt ſet out together.

Put $a = 1^b\frac{2}{3}$, the Time of the *ſloweſt* Hand, A, making 1 *Revolution*; and $b = 1^b\frac{1}{2}$, the Time of the *ſwifteſt* Hand, B, making 1 *Revolution*.

Then, As $\overset{Time.}{a} : \overset{Rev.}{1} :: \overset{Time.}{b} : \frac{b}{a}$ *Revolution*, made by A, in b Time, while B makes 1 *Revolution*, in the ſame Time. *Conſequently*, moving together, the *contrary* Way, they make $\frac{b}{a} + 1 = \frac{b+a}{a}$ *Revolutions*, in the *ſame* Time, b.

Now, as $\frac{b+a}{a}$ Revolutions : b Time :: 1 Revolution : $\frac{ba}{b+a}$ = *Product divided by the Sum of the Times of Revolutions of two Hands, or Bodies, moving the contrary Way, when they are next conjoined*, $= \frac{1^b\frac{1}{2} \times 1^b\frac{2}{3}}{1^b\frac{1}{2} + 1^b\frac{2}{3}}$ equal to $\frac{19}{6})\frac{15}{6}(= \frac{15}{19}$ Hour $= 47^m\frac{7}{19}$, the Time, *required*.

Remark. The Times of Revolutions, $1^b\frac{2}{3}$ and $1^b\frac{1}{2} = \frac{5}{3}$ and $\frac{3}{2} = \frac{15}{9}$ and $\frac{15}{10}$, reduced to the *ſame Numerator*, in loweſt Terms, ſhew that 15 Hours is the Time of *next Conjunction* of the Hands moving the ſame Way; and the reſpective Revolutions performed = to their *Denominators*, 9 and 10; hence the *Half* of $15^b = 7^b\frac{1}{2}$, and $4\frac{1}{2}$ and 5, (the $\frac{1}{2}$ of the Revolutions,) the Number of Revolutions performed by *each Hand*. See *P*. 36, *Pal*. 1771.

Mr. George Coughron *ſolves this Queſtion as follows*.

PUT a and b for $1\frac{1}{2}$ and $1\frac{2}{3}$, the *reſpective* Times of *Revolution*; then, as $\overset{T.}{b} : \overset{T.}{a} : 1$ (Revol.) : $\overset{Rev.}{\frac{a}{b}}$ = the *Part* of a Revolution, performed by the *ſloweſt* Hand, in the Time a; whence, $1 \pm \frac{a}{b} = \frac{b \pm a}{b}$ = *Sum* and *Difference* of the Parts of a Revolution paſſed over by the Hands in the *ſame* Time a, moving the *contrary* and *ſame* Way, reſpectively. Therefore, as $\frac{b-a}{b}$ Revolution

: $\frac{1}{2}$ Revolution :: *a* Time : $\frac{\frac{1}{2}ab}{b-a}$ Time $= 7\frac{1}{2}$ *Hours*, the Time after ſetting out, at which the *Hands* will be *oppoſite*, both moving the *ſame Way*. And as $\frac{a+b}{b}$ Revolution : 1 Revolution :: *a* Time : $\frac{ab}{a+b}$ Time $= 47^m\ 22^s\ \frac{2}{19}$, when the *Hands* will next be in Conjunction, moving the *contrary Way*; agreeing with the *former Solution*.

Mr. *Alexander Rowe* ſolved this Queſtion in the *ſame* Manner; as did Mr. *Ezekiel Walker*, of *Stapenhill*, *Derbyſhire*; Mr. *Samuel Smith*, of *Pakefield*, *Suffolk*; Mr. *Joſeph Donkin*, at Mr. *William Pearſon*'s School, *Northſhields*, Mr. *Robinſon*, of *Biddick*; Mr. *James Nicholſon*, at *Stanton*, *Northumberland*; Mr. *J. H.* of *Lewes*, *Suſſex*; Mr. *John Ruffle*, of *Bolam*, *Northumberland*; *Gemini*, of *Morpeth*; Mr. *W. Wilſon*, of *Norwich*; *James Bean Lee* and Mr. *W. Sedgwick*, of *Cottingham* Free-School; Mr. *W. Hayes*, of *Frodſham*, *Cheſhire*; Mr. *John Shadgett*, of *Roſs*; Mr. *Stephen Hartley*, of *Sowerby Bridge*; Mr. *Michael Taylor*, of *Marley-hill*, *Newcaſtle*; and Mr. *James Potts*, of *Bedlington*, *Northumberland*.

IV. QUESTION 453, *anſwered by Mr.* George Coughron, *of* Newcaſtle upon Tyne.

PUT *a*, *b*, *c*, for 1730, 1466, and 59; then, from the 1ſt Equation, $x^{\frac{1}{2}} = a - y^{\frac{1}{2}}$; which wrote for it, in the other two Equations, gives $y^{\frac{1}{2}} + z \times \overline{a - yz^{\frac{1}{2}}} = b$, and $z^{\frac{1}{2}} + y^{\frac{1}{2}} \times \overline{a - yz^{\frac{1}{2}}}|^2 = c$; from which Equations, by *Trial* and *Error*, $y = 64$, $z = 729$, and $x = 4$.

N. B. *This Queſtion is alſo in the* Gentleman's Diary *for* 1771, *propoſed by the ſame Mr.* Robinſon. — Why ſo?

Mr. *Ezekiel Walker*, of *Stapenhill*, *Derbyſhire*, *correcting the Data*, anſwers thus. —— Put $a = \sqrt{x}$, $e = \sqrt{y}$, $u = \sqrt{z}$, $b = 1730$, $c = 1466$, and $d = 59$, not 49, as *printed*.

He then gets, from the *given Equations*,

	1	$a + eeu = b.$
	2	$e + uua = c.$
	3	$u + aae = d.$
2 — *uua*	4	$e = c - uua.$
4 ſub. 3	5	$u + aac - a^3u^2 = d.$
4 ſub. 1	6	$a + \overline{c - uua}\|^2 \times u = b.$
5 ±	-	$uu - \frac{u}{a^3} = \frac{a^2c-d}{a^3}$. Sub. $n = \frac{1}{a^3}$ and comp. Sq.
Hence	8	$u = \sqrt{\frac{a^2c-d}{a^3} + \frac{nn}{4}} : + \frac{n}{2} = B$ for *u* in the
6 write B	9	$a + \overline{c - B^2a}\|^2 \times B = 1730$, ſolved by *double Poſition*, $a = 2$, Th. $x = 4$, $y = 64$, and $z = 729$, the Numbers *ſought*.

Mr. *Robinſon*, the *Propoſer*, corrects $d = 59$, for 49 printed; and, proceeding through a *Proceſs* of 17 regular Steps, comes to a *final* Equation of 3 *Radicals*, beſides compound *Quantities*; which reſolved, by *Trial* and *Error*, he finds the *required* Numbers, 4, 64, and 729.

Mr. *Alexander Rowe*, by a *ſimilar* Subſtitution to Mr. *Ezekiel Walker*'s, (correcting 49 to 59,) goes through a *ſhort Proceſs* of 6 written Lines, and comes to this *Concluſion*; $a^5-14.75a^3+54.390625a=22.78125$; whence he finds $a=2$; thence u (ſubſtituted for $\sqrt{z}$) $=27$; and conſequently $x=4$, $y=64$, and $z=729$, *required.*

Mr. *Richard Dalton*, of *Pool*, gives a *ſhort Proceſs* and true *Concluſions*. Mr. *John Lynn*, of *Ruffle*, *Northumberland*, ſhortly anſwered the *ſame*, giving the Correction. *Gemini*, of *Morpeth*, gave an *analytical* Solution without Numbers. Mr. *Michael Taylor*, of *Marley-hill*, gave a Proceſs and Numbers true; as did Mr. *J. H.* of *Lewes*, *Suſſex*; Mr. *Joſeph Cowley*, of Mr. *James Shaw*'s School, *Cheſterfield*, *Derbyſhire*; and Mr. *John Shadgett*.

V. QUESTION 454, *anſwered by Mr.* George Coughron.

PUT x for the *firſt* Number, and y for the *ſecond*; then will the *third* be $\frac{a}{xy}$; and, by *Queſtion*, $x : \frac{a}{xy} :: y-x : \frac{a}{xy}-y$; and $b+x : c-y :: c-y : \frac{a}{day}$; from which Proportions we get, by multiplying Extremes and Means, $2ax-x^2y^2=ay$, and $a\times\overline{b+x}=dxy\times\overline{c-y}|^2$; from the *former*, $x=\frac{a}{y^2}\pm\frac{a}{y^2}\sqrt{1-\frac{y^3}{a}}=\frac{ab}{dy\times\overline{c-y}|^2-a}$ by the *latter*. Whence y may be found, and thence the Reſt. W. W. R.

Mr. *Stephen Hartley* anſwered the ſame; as did Mr. *Robert Arnold*, junior; Mr. *James Muſcroft*; Mr. *George Hicks*; Mr. *J. H.* of *Lewes*; Mr. *Michael Taylor*; Mr. *George Grant*, Pupil to Mr. *Judſon*; *Gemini*, of *Morpeth*; Mr. *Judſon*, of *Beverley*, who makes this Obſervation by Way of *Corollary*. If Half the Sum of the Extremes ($=s$) and the Product of the 3 Numbers ($=a$), in any *harmonic Proportion*, be given, the Numbers themſelves will be $s+\sqrt{s^2-\sqrt{as}}$, $\sqrt{\frac{a}{s}}$, and $s-\sqrt{s^2-\sqrt{as}}$, univerſally.

Mr. *Richard Dalton* ſolved it; alſo Mr. *Alexander Rowe*, Mr. *Robinſon*, and Mr. *Lynn*, of *Ruffle*.

VI. QUESTION 455, *anſwered by Mr.* John Shadgett, *of* Roſs, Herefordſhire.

PUT $a=,7854$, $c=$ the Content of the *Pail* in cubic Inches, and $x=$ the inſide Diameter: Then, $ax^2=$ Area of the Baſe; $4ax=$ the Circumference of the Baſe; $\frac{c}{ax^2}=$ Depth of the *Pail*; $4ax\times\frac{c}{ax^2}=\frac{4c}{x}=$ concave Surface; and $ax^2+\frac{4c}{x}=$ whole inſide Surface, which muſt be a *Minimum* by the *Queſtion*.

In *Fluxions*, $2ax\dot{x}-\frac{4c\dot{x}}{x^2}=0$. Whence $x=\sqrt[3]{\frac{2c}{a}}=12.084372$, and the Depth $\frac{c}{ax^2}=6,042136$, if c be put $=$ the Content in *Wine Mea-*

ſure; but if it ſtands for *Ale Meaſure*, $x = 12{,}91526$, and the Depth $= 6.45763$. W. W. R.

Mr. George Coughron *anſwers it thus.*

By *Simpſon's Fluxions*, *Art.* 31, the Altitude $= \sqrt[3]{\frac{3 \times 282}{3.1416}} = 6.45763$, *&c.* and the *Diameter*, the Double thereof, $= 12.91526$, *&c. Inches.* That is, ſuppoſing the Thickneſs of the *Wood* of the *Pail* to be *inconſiderable.* But, if the *Wood be of a given Thickneſs*, it ſhould be taken into Conſideration, and the Concluſion in that Caſe will be different.

Mr. *Michael Taylor*, of *Marley*, makes the ſame Obſervations, after anſwering in the above Manner. For, the *Thickneſs* of the *Wood* of the *Pail* being conſidered, the *Difference* between the *internal* and *external* Solidities of the *Pail* will be the *Minimum*, or Pail itſelf.

This, it ſeems, is exemplified in Solution to 62 *Ladies Diary Queſt.* Hutton's *Gent. and Ladies Miſcellany.*

Mr. *William Pearſon*, of *Northſhields*, by an elegant Proceſs, finds the *Pail*'s Diameter $= 12.9153$, *&c.* and its Altitude $= 6.45767$, *&c. Inches.* Who ſays that *this Queſtion may be ſeen in ſeveral Books of Fluxions.* [Why then ſent to the *Palladium ?*]

Mr. *Samuel Smith*, of *Pakefield*, near *Loeſtoff*, *Suffolk*, anſwered the ſame in the ſame Manner; as did Mr. *Robinſon*, of *Biddick.* Mr. *Alexander Rowe*, from *Pal.* 1770. *P.* 44, gives this *Rule*; $\sqrt[3]{\frac{2 \times 3 \times 282}{.7854}} = 12.91526$, *&c. Inches* = Diameter; and thence (dividing by 2) 6.45763, *&c. Inches*, the *Pail*'s Depth, are the Dimenſions *required: confirming the above Solutions.* Mr. *Richard Dalton*, of *Pool*, confirms the ſame Truth; whoſe Solutions are, in general, elegantly performed. Mr. *Richard Judſon*, from *Queſt.* 384, *P.* 44, *Pall.* 1770, (being ſimilar,) finds the ſame Dimenſions; Mr. *Lynn* does the ſame by a ſhort Proceſs; as does *Gemini*, of *Morpeth*; and Mr. *George Grant*, Pupil to Mr. *Judſon.* Mr. *W. Hedley*, of *Northumberland*, ſolved it by a neat *Proceſs* without Numbers. Mr. *W. Wilſon*, of *Norwich*, ſolved it analytically and numerically; as did Mr. *J. H.* of *Lewes*; Mr. *J. Scott*, of *Cawthorne*; Mr. *J. B. Lee* and *W. Sedwick*; Mr. *John Broadbent*, of *Saddleworth*, *Yorkſhire*; who refers to *Fletcher's Univerſal Meaſurer and Mechanic*, *Qu.* 40, *P.* 136, *Part* 3. He informs us of the *Palladium Queſtions* being wrong numbered, which is now corrected in the Anſwers. It was alſo ſolved by Mr. *Joſeph Cowley*, of *Cheſterfield*, *Derbyſhire*; Mr. *W. Hayes*, of *Frodſham*, *Cheſhire*; Mr. *Stephen Hartley*; and Mr. *James Potts*, of *Bedlington.*

Mr. *Charles Taylor*'s Solution to this *Queſtion* (who is Pupil to Mr. *Brownell* of *Coventry*) is correct; as are his Solutions in general.

VII. QUESTION 456, (*marked* VI. 455, *the ſecond,*) *anſwered by Mr.* George Coughron.

PUT v^2 and w^2 for $x+y$ and xy, reſpectively, and the given Equations will become $v^3+w^3=a$; and $v^4-2w^2=b$; from the firſt of which, $w^6 = \overline{a-v^3}|^2 = \frac{1}{8} \times \overline{v^4-b}|^3$ by the 2d Equation; from which v may be determined, (but not by a *Quadratic,*) and thence w is had, *&c.*

Mr. Alexander Rowe's *Solution.*

PUT $x+y=v^2$, and $xy=u^2$; then, from the given Equations, we have $v^3+u^3=a$, and $v^4-2u^2=b$; therefore, $u^2=\frac{v^4-b}{2}$, and $u=\sqrt{\frac{v^4-b}{2}}$; theſe Values put for thoſe in the firſt, we get $v^3+\frac{v^4-b}{2}\sqrt{\frac{v^4-b}{2}}=a$; which, ſolved by *Trial and Error,* gives the Value of v; thence we obtain that of u; and conſequently thoſe of x and y; when a and b are known.

N. B. In many Caſes the laſt Equation will reduce ſo as to be reſolved by a *ſimple* Equation. *Quere.*

Gemini, of *Morpeth,* ſubſtitutes in the ſame Manner, and finds the ſame *Concluſions* as Mr. *Coughron* and Mr. *Rowe.* Mr. *Robinſon,* of *Biddick,* puts $ny=x$, $n+1=m$, $my=x+y$, ($d=\sqrt{n^3}$, $b=m^3+2da$, in proceeding,) reducing the given Equations to $\sqrt{m^3y^3}+\sqrt{n^3y^6}=a$; and $n^2y^2+y^2=b$; finding y^3, by ſolving a *Quadratic,* to be ſquared and compared with y^2 *cubed,* got from the 2d *Equation*; but ſo involved with *Radicals* and compound *Terms,* as to fall ſhort of the Purpoſe. Another Correſpondent *miſtook* in reducing his ſubſtituted Equations from thoſe given, and ſo loſt the Uſe of his *Quadratic.* — Mr. *Michael Taylor,* of *Marley-hill,* near *Newcaſtle,* puts $y=mx$ and $x+y=nx$, and proceeds to a *complex* final Equation. —Mr. *Potts* ſays (from Mr. *Lynn*) the Queſtion ſhould be thus; $\overline{x^2+y^2}\big|^{\frac{3}{2}}+\overline{xy}\big|^{\frac{3}{2}}=a$; and $x^2+y^2=b$. Put $x+y=s$, and $xy=p$; then $p^{\frac{3}{2}}=a-b^{\frac{3}{2}}$, or $p=\overline{a-b^{\frac{3}{2}}}\big|^{\frac{2}{3}}$; which being a known Quantity, put in the 2d Equation: And $s^2-2p=b$, or $s^2=b+2p$; whence $s=\sqrt{b+2p}$. Now s and p being known, $x+y=s$, $xp=p$, ſquaring the 1ſt, $x^2+2xy+y^2=s^2$; from which take 4 Times the latter, and $x^2-2xy+y^2=s^2-4p$; whence $x-y=\sqrt{s^2-4p}$; add this to the firſt, and $2x=\sqrt{s^2-4p}+s$; $\div 2$, and $x=\frac{\sqrt{s^2-4p}+s}{2}$.

VIII. QUESTION 457, (*marked* VII. 456,) *anſwered by Mr.* Robinſon, *of* Biddick.

	1	$x+y+z=b=19$.	*Required* x, y, and z.
	2	$xyz=c=240$.	
	3	$x^2+y^2+z^2=d=125$.	
1 transf.	4	$x+y=b-z$.	
2 ÷	5	$xy=\frac{c}{z}$, therefore $2xy=\frac{2c}{z}$.	
3 transf.	6	$x^2+y^2=d-z^2$.	
5 + 6	-	$x^2+2xy+y^2=d-z^2+\frac{2c}{z}$.	

4 ⊚ | 8 | $x^2+2xy+y^2 = b^2-2bz+z^2 = d-z^2 + \frac{2c}{z}$.

Th. | 9 | $2z^3-2bz^2 \pm db^2z = 2c$; ſolved, $z=6$, $y=5$, $x=8$, *required.*

Mr. George Coughron's *Solution.*

PUT a, b, c, for the *given* Numbers, and x, y, z, for the *required* ones; then will $x+y+z=a=19$; $xyz=b=240$; and $x^2+y^2+z^2 = c = 125$; from the 1ſt, $\overline{x+y}|^2 = \overline{a-z}|^2$; from this ſubtract the 3d, and multiply the Remainder by $\frac{1}{2}z$, ſo ſhall $ayx = z^3-az^2+\overline{\tfrac{1}{2}a^2-\tfrac{1}{2}c} \times z = b = 240$; the Roots of which Equation are 5, 6, 8, the Numbers *required.*

Mr. *Richard Dalton*, of *Pool*, ſolved it in the ſame elegant and accurare Manner; as did Mr. *Samuel Smith*, of *Pakefield*, near *Loeſtoff*, *Suffolk*; Mr. *James Muſcroft*, of *Rotherham*; (Mr. *Joſeph Cowley*, of Mr. *James Shaw*'s School, *Cheſterfield*, gave the Numbers.) Mr. *Charles Taylor*, Pupil in Mr. *Brownell*'s School, *Coventry*, after a ſhort and neat Proceſs, came to this *final* Equation,

$$z^3-az^2+\frac{a^2-c}{2}z = b = 240, \quad (a=19, \ b=240,)$$

which ſolved, he finds $z=6$, $x=8$, $y=5$, as before. Mr. *Charles Burton*, of *Bretby*, ſolved it analytically and truly; as did Meſſrs *Goodlad* and *Harland*, of *Cottingham* Free-School; Mr. *Ezekiel Walker*, of *Stapenhill*; Mr. *John Shadgett*, of *Roſs*; Mr. *William Pearſon*, of *Northſhields*; Mr. *John Lynn*, of *Bolam*; Mr. *Judſon*, of *Beverly*; *Gemini*, of *Morpeth*; Mr. *George Grant*, Pupil to Mr. *Judſon*; Mr. *W. Hedley*, *Northumberland*; Mr. *W. Wilſon*, of *Norwich*; Mr. *I. H.* of *Lewes*, *Suſſex*; Mr. *J. B. L.* and *W. Sedgwick*; Mr. *W. Hayes*, of *Frodſham*, *Cheſhire*; and Mr. *Robert Arnold*, junior, of *Brinſworth*.

Mr. *John Broadbent*, of *Saddleworth*, *Yorkſhire*; Mr. *Stephen Hartley*; Mr. *George Hicks*, of *Reedneſs*; and Mr. *Michael Taylor*, alſo ſolved it.

Mr. *Alexander Rowe* obſerves, that one of the Numbers muſt be $= \overline{125}|^{\frac{1}{3}} = 5$. Then, $19-5=14$; and that $240 \div 5 = 48$, are the *Sum* and *Product* of the other two Numbers; which are evidently 6 and 8, by *Inſpection.*

N. B. *When the Differences between the Numbers are but ſmall, the Integer, whoſe Cube comes neareſt to the given* Sum *of the Squares of the three Numbers, is one of the required Numbers.*

Mr. *James Potts*, of *Bedlington*, ſolved it by an Equation of the 3d Power.

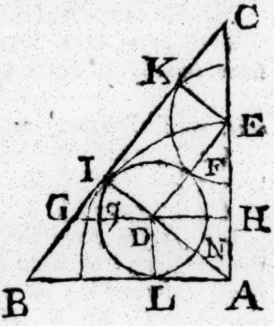
IX. QUESTION 458, *(marked* VIII. 457,) *anſwered by Mr.* George Coughron.

THIS *Queſtion* is propoſed *inconſiſtently*; for, by the *Principles* of *Hydroſtatics*, the Parts of the ſame Body, immerſed in different *Fluids*, are as the ſpecific *Gravities* of thoſe Fluids *inverſely*; whence, as the *ſpecific* Gravity of *Water* is to that of *Milk* (by *Emerſon*) as 1 to 1.031, the Solidity immerged in the Water will be to that in the *Milk*, as 1.031 to 1; but, by the *Queſtion*, theſe *Solidities* are as 20 to 7, an *Impoſſibility.* —— If the *Ratio* of the Parts immerged were right, the Diameter of the Globe could not ſtill be determined; for, let it be great or ſmall, the *Parts* immerged would be to the *whole* in a conſtant *Ratio.*

Mr. *J. Lynn* obſerves, had the Kind of *Wood* of the Globe, and the Part of it *immerſed* in any Fluid, been given, the Queſtion had been *limited.*

Remark. This ſhews the Neceſſity of *Correſpondents* ſending *Solutions* with their *Queſtions*, (or leave others to propoſe;) it being as *neceſſary* as ſending *Solutions* with *Ænigmas*, *Rebuſes*, *Paradoxes*, &c. that their *Fitneſs* for inſertion may be judged of: Whereas there is not Time for the *Compiler* to examine the *Propriety* of all *Queſtions* propoſed, were he qualified or diſpoſed for the Taſk, (eſpecially when propoſed in *inconſiſtent Numbers* or *Data*,) when he would oblige his Correſpondents, who are *preſſing* for their Publication, and promiſe to ſend Anſwers (which never come) by and by. Hence alſo appears the *Neceſſity* of working out the *Numbers* in Anſwers to Queſtions (*where it can be done*) for *Compariſon*, and to prevent *Miſtakes*. —— *Pal. Author.*

X. Question 459, (*marked* IX. 458,) *anſwered by the Propoſer, Mr.* Judſon.



PUT AC $= a$, AB $= \frac{30}{2} = 15 = b$, CB $= 25 = c$, and call the Semidiameter of one of the Bottom Spheres $= x$. Then, as $1 : d$ (2.1547) $:: x : dx =$ H*g*, the Semidiameter of the *greateſt* Circle circumſcribing the 3 *Bottom Spheres*. By *ſim.* Triangles, $a : c :: x : \frac{cx}{a} =$ DG; and as $a : b :: a - x : \frac{ab - bx}{a} =$ HG. Therefore, $\frac{ab - bx}{a} - dx + x = \frac{cx}{a}$; hence, $x = \frac{ab}{c + b + ad - a} = 4.75481$, the Semidiameter of *one* of the 3 *lower Spheres*; conſequently, the Diameter $= 9.50962$ Inches. *Secondly*, put $d = 4.75481$, the Semidiameter of the lower Spheres, and $g =$ DH $= 5.4904$, $x =$ Semidiameter of the *upper Sphere*; then DE $= x + d$, and HE $= \sqrt{x^2 + 2dx + d^2 - g^2}$, and CE $= a - d - \sqrt{x^2 + 2xd + d^2 - g^2}$; by ſimilar Triangles, as $c : b :: a - d - \sqrt{x^2 + 2dx + d^2 - g^2} : x$; th. $cx = ba - bd - b\sqrt{x^2 + 2xd + d^2 - g^2}$; but $ba - bd = f$. Now, by ſquaring each Side of the Equation, and Reduction, we have $x^2 - \frac{2fcx - 2b^2dx}{c^2 - b^2} = \frac{b^2d^2 - b^2g^2 - f^2}{c^2 - b^2}$; which put $= -m$; and $-2p = \frac{2fc - 2b^2d}{c^2 - b^2}$; then will $x^2 - 2px = -m$; hence, $x = p - \sqrt{p^2 - m} = 4.5914$, the Semidiameter, and 9.1828 Inches, the Diameter of the *upper Sphere*. *Thirdly*, put $x =$ the Semidiameter of the *Punch-Bowl*, A$n = x - 2d$; then AI × A$n =$ AL^2; th. $x^2 - 2dx = g^2$; hence $x = d \pm \sqrt{g^2 + d^2} = 12.0184$, the Semidiameter; and, conſequently, 24.0868 Inches, the Diameter of the *Punch-Bowl*. **W. W. R.**

Mr. *James Bean Lee*, and Mr. *W. Sedgwick*, of *Cottingham*-School, find the Diameters of each of the 3 *Bottom* Globes *exactly* the ſame as Mr. *Judſon*'s Number, $= 9.50962$; but find the Diameter of the *upper* Globe $2 \times 4.60841 = 9.21682$ Inches; and the *Diameter of the Punch-Bowl* $= 2 \times 12.0172 = 24.0344$ Inches. Mr. *James Lamb*, Preceptor, at *Aldbrough*, near *Hull*, finds (from a *Proceſs*) the Diameters of the Bottom Spheres $= 9.5096$ Inches; and 9.2028 Inches the Diameter of the *upper Sphere*, and

24.0358 Inches the Diameter of the *Bowl*; whoſe Method is ſimilar to Mr. *Judſon*'s; and Mr. *George Coughron*. of *Newcaſtle*, by the ſame Kind of Proceſs, finds the *ſame* Numbers; confirming the Truth of Mr. *Lamb*'s Numbers, to an *Accuracy*; Mr. *Coughron*'s Methods and final Solutions being generally to be depended on. Mr. *Alexander Rowe*, Mr *Robinſon*, of *Biddick*, Mr. *Grant*, of *Beverley*, Mr. *J. Lynn*, of *Northumberland*, and Mr. *Michael Taylor*, of *Marley-Hill*, by a *Proceſs* ſimilar to Mr. *G. Coughron*'s, *(elegant and accurate,)* anſwered the ſame.

XI. QUESTION 460, *(marked* X. 459,*) anſwered by Mr.* G. Coughron.

THE *Area* of a Triangle, whoſe Sides are 2, 3, 4, is 2.90474, &c. and ſince *homologous* Parts of *ſimilar* Figures are as the Square-Roots of their *Areas*, we ſhall have, as $\surd 2.90474 : \sqrt{10}$ (the given *Area* in ſquare Chains) $:: \left\{\begin{matrix}2\\3\\4\end{matrix}\right\}\left.\begin{matrix}3.71088\\5.56632\\7.42176\end{matrix}\right\}$ *Chains*, the Sides *required*.

Mr. *Judſon* gives the ſame Kind of *Anſwer*; whoſe Numbers agree with the foregoing; as does Mr. *G. Grant*'s Anſwer, of *Beverley*. Mr. *Alexander Rowe* anſwered it; as did Mr. *Robinſon*, of *Biddick*; Mr. *J. Lynn*, of *Northumberland*; Mr. *W. Hayes*, of *Frodſham*, *Cheſhire*; Mr. *Robert Arnold*, jun. of *Brinſworth*, near *Rotherham*; Mr. *James Lamb*, Preceptor at *Aldbrough*, near *Hull*; Mr. *John Broadbent*, of *Saddleworth*, *Yorkſhire*; Mr *G. Hicks*, of *Reedneſs*; Mr. *R. Dalton*, of *Poole*; Mr. *Samuel Smith*, of *Pakefield*, near *Loeſtoff*, *Suffolk*; Mr. *C. Taylor*, Pupil in Mr. *Brownwell*'s School, *Coventry*, elegantly and *univerſally*; Mr. *Goodlad* and Mr. *Harland*, of *Cottingham* School; Mr. *Ezekiel Walker*, of *Stapenhill*; Mr. *John Shadgett*, of *Roſs*, by an elegant and univerſal Proceſs; Mr. *James Nicholſon*, Preceptor at *Stanton*, *Northumberland*, late Pupil to Mr. *Lynn*, Preceptor at *Bolam*; Mr. *Joſ. Donkin*, at Mr. *W. Parſons*'s School, *North-Shields*; *Gemini*, of *Morpeth*, accurately; Mr. *W. Hedley*, *Northumberland*; Mr. *W. Wilſon*, of *Norwich*; Mr. *Stephen Hartley*, of *Sowerby-Bridge*; Mr. *J. Scott*, of *Cawthorne*; Mr. *J. H.* of *Lewes*, *Suſſex*; Mr. *Michael Taylor*, of *Marley-Hill*; Mr. *James Muſcroft*, *Rotherham*; and Mr. *James Potts*, of *Bedlington*, *Northumberland*.

XII. QUESTION 461, *(marked* XI. 460,*) anſwered by Mr.* G. Coughron.

THIS Queſtion is very little different from *Queſt.* 21, *Pal.* 1771, and is, as well as that, propoſed *inconſiſtent*. For let x be put for the Sine of the greateſt acute Angle (which I ſhall ſuppoſe at the *Vortex*); then, by *Queſt.* the Perpendicular will be $2x$; and, by *Trigonometry*, the Baſe $= \frac{2x^2}{\sqrt{1-x^2}}$; therefore, $\frac{2x^2}{\sqrt{1-x^2}} \pm 2x =$ Sum and Difference of the Legs; which, by *Queſt.* muſt be $= \frac{4x^4}{1-x^2}$, and $4x^2$, reſpectively; or $\frac{x}{\sqrt{1-x^2}} + 1 = \frac{2x^3}{1-x^2}$, and $\frac{x}{\sqrt{1-x^2}} - 1 = 2x$. But ſince no *Number* whatever can be taken for the Value of x, ſo as to anſwer both theſe Equations, the *Queſtion* is therefore *impoſſible*. With Regard to the *other Queſtion*, mentioned above, the Propoſer (Mr. *Hartley*) has attempted to prove the Truth or Conſiſtency thereof, in laſt Year's *Palladium*; but, in this, he is *deceived*; for though he has made

$z=2x$,

$x = 2x$, yet he has not ſhewn the *Value* of x, when this happens; imagining, I ſuppoſe, that it would hold good in any Caſe: but the *contrary* will appear, from hence. — Write $2x$ for z, in either of the Equations in the 3d Line of his *Demonſtration*, and there will reſult, from each of them, $2x^2 + 2x\sqrt{1-x^2} = 2x^4$, for determining the Value of x, *(as by my Proceſs,)* or $x + \sqrt{1-x^2} = 2x^3$; from whence $x = .8785 =$ Natural Sine, 61° 30′, nearly $=$ the Sine of the greater acute Angle, when the Theorem, or Rule, holds good; and which is the only Caſe in which it is *poſſible*.

I obſerved, laſt Year, that the *Theorem was only true when* x *was* $=$ *to the Value, or Values, of it, got from my final Equations; but my Obſervation was, unfortunately, not printed.* — Mr. *Rowe*'s Demonſtration only proves, that $4a^2 = 4a^2$, and no more.

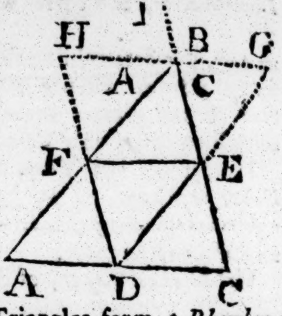
Mr. *Michael Taylor*, of *Marley Hill*, puts $x = \text{S}$, the greateſt *acute* Angle; then, if the Perpendicular $= 2x$, the other Leg $= 2\sqrt{1-x^2}$; therefore, according to the *Theorem*, $2x + 2\sqrt{1-x^2} = 4x^2$, and $2x - 2\sqrt{1-x^2} = 4 \times \overline{1-x^2}$. Whence their Sum $= 4x = 4x^2 + 4.\ \overline{1-x^2}$; hence $2x = 2$, not $= u$; an *Abſurdity* of the Propoſer. — Mr. *Lynn*, of *Bolam*, has proved the ſame *Abſurdity*.

Mr. *Alexander Rowe* proceeds thus. — Put $2x =$ the Perpendicular, or leſſer Leg, x and $\sqrt{1-x^2} =$ the Sine and Coſine of the Angle at the Vertex; then, by Trigonometry, $\frac{2x^2}{\sqrt{1-x^2}} =$ Baſe, or greater Leg: whence, by *Queſt.* $\frac{2x^2}{\sqrt{1-x^2}} = 2x = \frac{4x^4}{1-x^2}$, and $\frac{2x^2}{\sqrt{1-x^2}} - 2x = 4x^2$; their Sum $= \frac{4x^2}{\sqrt{1-x^2}} = (\frac{4x^4}{1-x^2} + 4x^2 =) \frac{4x^2}{1-x^2}$; therefore, $\sqrt{1-x^2} = 1 - x^2$; conſequently, $1 - x^2 = 1 - x^2 + x^4$; conſequently, $x^2 = 1$, and $x = 1 =$ Rad. ſhewing the *Queſtion* to be *impoſſible*.

Mr. *Hartley*, after a Proceſs, ſays, that the *Perpendicular* is equal to an Arc, or Angle, whoſe *Sine* is that of *twice* the Arc, or Angle, at the *Baſe*; and not the *Sine* of twice the Angle at the *Vertex*, as *(inconſiſtently)* expreſſed in the *Queſtion*. Who complains, that Mr. *Coughron* has affirmed, that his *Queſtion*, (of this Kind,) beforementioned, is not *univerſally* true: to which he objects, (if not,) that then 47 *E.* 1. is not *univerſally* true. But, we hope, Mr. *Coughron* has now ſatisfied this Gentleman's Scruples in what we have inſerted. Mr. *Coughron*'s Judgement is of ſome Authority, had he not given a *Demonſtration* of its being good, as before, (without which, *Newton*'s Word would not paſs,) and there is *more Honour in acknowledging a Miſtake, than in perſiſting in an Error, or endeavouring to hide what cannot be concealed.* — Mr. *Hartley* has *found out Mr.* Hicks's *Miſtake, but could not ſee his own, when pointed out to him.* He ſays, in his Letter, dated *Jan.* 31, 1772, "I cannot, at preſent, ſee my *Error* in my *Solution* to *Queſtion* 9th, as Mr. *Coughron* has remarked. As to "what he ſays about my *Solution* to *Queſtion* 19th, it is not true; for neither "*ſmall Coals nor Sand*, &c. can be cop'd up any *higher* (be they never ſo leiſurely put thereon) than *Half* the Diameter of the *cylindrical* Meaſure's

" Top; as I have ſome Time experienced. As I am as ſubject to err as any " other Man, ſo, as any other Perſon, I am open to *Conviction*."

XIII. Question 462, (*marked* XII. 462.) *anſwered by Mr*. G. Coughron.



JOIN the Centers of the 3 Sides, D, E, F, of any *Triangle*, ABC, and it will be divided into 4 equal and *ſimilar* Parts; (and the Sides of the inner Triangle will be, reſpectively, parallel to the Sides of the external or outer Triangle): For, by *Eucl.* 6. 0. the Triangles AFD, DCE, EBF, are each ſimilar to the including Triangle, ABC, and therefore are *ſimilar* to one another. Alſo the Lines, DE, EF, FD, are parallel to AB, AC, CB, *Eucl.* 2. 6. and therefore the *internal* Triangle, DEF, is equal and ſimilar to each of the three aforeſaid Triangles, as that and each of the other Triangles form a *Rhombus*; conſequently, *thoſe Triangles are all equal and ſimilar to one another*. Q. E. D.

As to the 2d Part of this *Queſtion*, I have never tried it; thinking there are *Demonſtrations* to it, good enough, already.

Gemini, of *Morpeth*, gave a ſimilar Demonſtration; and Mr. *Ezekiel Walker*, by a double Triangle, forming a *Rhomboides*. Mr. *G. Grant*, of *Beverley*, ſolved it; as did Mr. *Alexander Rowe*; Mr. *John Lynn*; Mr. *George Hicks*, of *Reedneſs*; Mr. *Hayes*, of *Frodſham, Cheſhire*; Mr. *Robinſon* and Mr. *Michael Taylor*; Mr. *J. B. Lee* and Mr. *Sedgwick*; and Mr. *Nicholſon*, of the *Iſle of Wight*. Mr. *James Potts*, of *Bedlington*, gave an elegant Solution and Demonſtration, in *Latin*.

Ocular Demonſtration to the 2d Part of the Queſtion, by Mr. Nicholſon, *in the* Iſle of Wight.

DRAW HG parallel to AC, and complete the Triangles, FHB and EGB, by DF and DE, continued; when the Triangle, ADF = and ſimilar to BHF, and CDE = and ſimilar to BGE (from what is done by Mr. *Coughron*): Let the Triangles, FAD and ECD, turn about to the Right and Left, on the Points, F and E, till the Points, A and C, fall into, or coincide with, B. Then will AD and CD (= HB and BG) fall into HG, and the Angles A + ABC + C = 2 Right-Angles. Alſo the Angle ABI = the Angles A + C = the Angles ABH + HBI. To which add the Angle ABC, and the Sum (= the 3 Angles of ABC) = 2 Right-Angles, as before.

XIV. Question 463, (*marked* XIII. 463,) *anſwered by Mr*. G. Coughron.

IT is ſhewn, in ſeveral Places, that the Length and Breadth of a Rectangle is to the Tranſverſe and Conjugate Diameters, reſpectively, of its *leaſt* circumſcribing Ellipſis, as 1 to $\sqrt{2}$; therefore, the Tranſverſe, here required, = $36\sqrt{2} = 50.911688$, &c. and the Conjugate = $30\sqrt{2} = 42.4264069$, &c.

Mr. *Alexander Rowe*, by drawing the Figure, and taking the Fluxion of the circumſcribing Ellipſis, or of an *Expreſſion*, a *Minimum*, determines the Tranſverſe to be = 50.90968, and Conjugate 42.428086 Inches: He gives an elegant and ſmall Figure; whereas ſome Figures ſent are much too large. Mr. *Robinſon*, by a ſmall Figure, and fluxional Operation, finds the Tranſverſe = 50.912, and Conjugate 42.426, &c. Mr. *Michael Taylor*, the Dimenſions thereof, 50.911688245, &c. and 42.426406874, &c. Inches, by a Proceſs; Mr. *W. Wilſon*, of *Norwich*, 50.91156, and 42.428, &c. *Gemini*, of *Morpeth*, 50.91, &c. and 42.42, &c. Mr. *W. Judſon*, 50.9112, &c. and

42.430,

42.430, *&c.* Mr. *Brownell,* Writing and Mathematical Maſter, *Coventry,* 50.911688245, *&c.* and 42.426406871, *&c.* Mr. *Samuel Smith,* of *Pakefield, Suffolk,* 50.91156, *&c.* and 42.4264, *&c.* Mr. *W. Hayes,* of *Frodſham, Cheſhire,* 50.9112, and 42.426, *&c.* Mr. *George Grant,* of *Beverley,* 50.9112, 42.426, *&c.* Mr. *Hartley,* 50.9116, *&c.* and 42.4264, *&c.* Mr. *J. Lynn,* 50.911676, and 42.426395, *&c.* Mr. *W. Pearſon,* of *Northſhields,* 50.91168, and 42.426408. Mr. *J. B. Lee* and Mr. *Sedgwick,* 50.904, and 42.42.

XV. QUESTION 464, (*marked* XIV. 463,) *anſwered by Mr.* George Coughron, *of* Newcaſtle.

THIS Queſtion is a particular *Caſe* of *Prob.* 40, P. 306, *Simpſon's ſelect Exerciſes*; and, by proceeding according to the *Rate* there given, we find 1540l. and 1050l. for the Values of the Expectations of the eldeſt and youngeſt, *reſpectively,* upon their own Legacies; and 140l. and 250l. for the Values of their Expectations upon each other's Legacy: whence, 1540 + 140 = 1680l. is the *whole* Value of the Expectation of the *eldeſt,* and 1050 + 250 = 1300l. is that of the *youngeſt.* W. W. R.

By another *Solution,* we received from an ingenious Correſpondent, he makes 1690l. (nearly,) and 1249l. the Values of the Expectations of the *oldeſt and youngeſt,* reſpectively; where the Nephews are ſuppoſed not entitled to any Thing, unleſs they ſurvive their Uncle. But, in Caſe the longer Liver of the two (both dying before the Uncle) be entitled to the Whole, after his Death, then the Value of their *Expectations* will be ſomewhat different.

The ſame anſwered by Mr. Alexander Rowe, *the Propoſer.*

AN *Annuity,* upon the Life of the *Teſtator,* of 68 Years of Age, (by M. *de Moivre*'s Tables,) is worth 6.91 Years Purchaſe, which call a; .035 (the Intereſt of 1l. at $3\frac{1}{2}$ *per Cent.*) b. Now, ſuppoſe the *Teſtator* to die before either of his Nephews, or Legatees; then, $\overline{1-ab}\times 2400 = 1819.56$l. = the eldeſt Nephew's Expectation; alſo, $\overline{1-ab}\times 1600 = 1213.04$l. = that of the youngeſt. Put $c = 68$, $d = 63$, and $e = 18$, the *Complements* of Life to 86; then $1-\frac{e}{2d}-\frac{e}{2c}+\frac{e^2}{3cd} = 0.75$: Hence, $1819.56\times .75 = 1364.67$l. and $1213.04\times .75 = 909.78$l. which are the preſent Expectations of the Nephews, ariſing from the above Suppoſition. Moreover, $\frac{e}{2d}-\frac{e^2}{3cd} = 0.117647$; and $\frac{e}{2c}-\frac{e^2}{3cd} = 0.1071428$; whence $\overline{1819.56+1213.04}\times .117647 = 356.7763$l. and $\overline{1819.56+1213.04}\times .1071428 = 324.9213$l. which are the ſecond Parts of their reſpective Expectations. Conſequently, 1364.67l. + 356.7763l. = 1721.4463 = 1721l. 8s. 11.112d. = total Expectation of the *eldeſt* Nephew; and 909.78l. + 324.9213l. = 1234.7013l. = 1234l. 14s. 0.3:2d. = that of the *youngeſt* Nephew (*ſee the before cited Author's Doctrine of Chances,* P. 286, 287). Q. E. F.

Remark. The judicious *Critic* may compare the *Principles* and *Concluſions* both Solutions proceed on, and finally determine.

XVI. QUESTION 465, (*marked* XV. 464,) *anſwered by Mr.* Alexander Rowe, *of* Cornwall.

PUT $a=623.4595$; $b=89699.4605$; then, from the 1ſt given Equation, $y^2=\overline{a-x^2}|^2+x^2$, which put in the 2d, we have $\overline{a-x^2}|^2+x^2-\sqrt{\overline{a-x^2}|^2+2x^2}=b$. Reſolved, by *Trial and Error*, $x=18$ Years = the *Lady*'s Age; whence, $y=300$l. her Fortune, required.

Mr. *Coughron* ſolves it thus. — He puts a and b to denote the Numbers, above; $v^2=y^2-x^2$, $w^2=y^2+x^2$; then will the given Equations become $\frac{1}{2}w^2-\frac{1}{2}v^2+v=a$, and $\frac{1}{2}w^2+\frac{1}{2}v^2-w=b$; by taking their Sum, $w^2-w+v=a+b$; and putting the Value of v, got from this Equation, we have $\overline{a+b+w-w^2}|^2+w^2-2w=2b$; which reduced, $w^4-2w^3-2\times\overline{a+b-1}\times w^2+2\times\overline{a+b-1}\times w=2b-\overline{a+b}|^2$; from whence $w^2=90324$, $v^2=89676$, and thence x and $y=\sqrt{\frac{1}{2}w^2\pm\frac{1}{2}v^2}=18$ and 300. W. W. R.

N. B. *Here* w *muſt be ſomething more than* 300. *The Advantage of Solution from theſe Sorts of* high *Numbers, and* final *Equations, is doubted; but left to Experience.*

Mr. *Robinſon* purſues this Solution through 10 *regular* Steps, and comes to a *complex* final Equation; from which he finds the Numbers as above. Mr. *Michael Taylor* anſwers it from a correct, but complex, *final* Equation. Mr. *Lynn* reduces his Equation to a 4th Power, and finds the Value of u, ſubſtituted for, $=4.2426$; and thence he gets 18 and 300, the *Age* and *Fortune*. But it appears, that 18 is ſooneſt and beſt got from a *final Equation*, without Subſtitution. Mr. *James Lamb*, of *Aldbrough*, near *Hull*, ſolves it by a perfect *final* Equation of the 8th *Power*, without *Subſtitution*; whence he gets 18, and then 300. Mr. *Charles Burton*, of *Bretby*, ſolved it from an Equation, by *Trial and Error*; as did Mr. *R. Judſon*; Mr. *Shadgett*, of *Roſs*; Mr. *W. Hayes*, of *Frodſham*; Mr. *Ezekiel Walker*, of *Stapenhill*; Mr. *Robert Arnold*, jun. of *Brinworth*; Mr. *G. Grant*, of *Beverley*; and Mr. *R. Dalton*, of *Pool*; by a neat Proceſs. Mr. *James Muſcroft*, of *Rotherham*, ſolved it; Mr. *J. B. Lee*; and Mr. *Sedgwick*.

XVII. QUESTION 466, (*marked* XVI. 465,) *anſwered by Mr.* Robinſon, *of* Biddick.

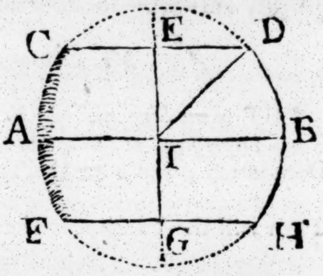
$\frac{1728}{3.5\times3.5\times.7854}=179.604$ Inches $=14$ Feet $11\frac{2}{3}$ Inches, the Depth of the *Bore*, required.

Mr. *Coughron* finds it in the ſame Manner, $\frac{1728}{3.5|^2\times.7854}=\frac{1728}{9.62115}=179.603$ Inches.

Mr. *Richard Dalton*; Mr. *Robert Arnold*, jun. Mr. *Ezekiel Walker*; Mr. *John Shadgett*; Meſſrs. *Goodland* and *Harland*; Mr. *J. Lynn*, of *Bolam*; Mr. *Pearſon*, of *North-Shields*; *Gemini*, of *Morpeth*; Mr. *Hedley*, *Northumberland*; Mr. *W. Wilſon*, of *Norwich*; Mr. *J. Scott*, of *Cawthorne*; Mr. *Hartley*; Mr. *Broadbent*; Mr. *Alexander Rowe*; Mr. *Joſ. Cowley*, of Mr. *James Shaw*'s School, *Cheſterfield*; Mr. *Samuel Smith*; Mr. *Judſon*, of *Beverley*;

Mr. *J. B. Lee*; Mr. *Sedgwick*; Mr. *James Muſcroft*, *Rotherham*; Mr. *J. H.* of *Lewes*; and Mr. *James Potts*, of *Bedlington*, *Northumberland*; anſwered it; and alſo Mr. *Anthony Young*, one of his *ingenious* young Pupils, who anſwered the 5th and 6th Ænigmas.

XVIII. QUESTION 467, *(marked* XVII. 466,) *anſwered by Mr.* Robinſon.



$\frac{9.3205}{.5236} = 17.818$: Put $2x = CD = FH$, Diameters; $4x - 4 = EG$, the Depth of the Snuff-Box; $2x - 2 = IE$, by *E.* 1. 47. $ID^2 = \overline{5a^2 - 8x + 4} \times 4 = 20x^2 - 32x + b = AB^2$; then, by a known *Theorem*, or Rule, we get $88x^3 - 216x^2 + 192x - 64 = 17.818$; ſolved, $x = 1.34$; therefore, $2x = 2.68$, the Diameters at Top and Bottom; and the Depth $= 1.36$ Inches. W. W. R.

Mr. *G. Coughron*, of *Newcaſtle*, anſwered it accurately. Mr. *Richard Dalton*, of *Pool*, finds (from a Proceſs) the Diameters 2.69494, and Height 1.3898 Inches. *Gemini*, of *Morpeth*, finds them 2.7, and 1.4, nearly, from a Proceſs; Mr. *James Nicholſon*, Preceptor, at *Stanton*, *Northumberland*, 2.69474, and 1.38948. Mr. *Grant*, of *Beverley*, anſwered it; as did Mr. *Judſon*, and Meſſrs. *Goodlad* and *Harland*, of *Cottingham* School. Mr. *Nath. Brownell*, Writing and Mathematical Maſter, of *Coventry*, accurately (by a *ſhort Proceſs)* found the Diameters 2.6947526, and Height of the Box 1.3895052; Mr. *James Lamb*, 2.694755, and 1.38951; Mr. *W. Hayes*, of *Frodſham*, *Cheſhire*, 2.69175, and 1.3835. Mr. *W. Pearſon*, of *North-Shields*, ſent his Method. Mr. *J. B. Lee*, and Mr. *Sedgwick*, gave 2.69435, and 1.3891. Mr. *W. Wilſon*, of *Norwich*, ſolved it; as did Mr. *Smith*, of *Pakefield*; Mr. *Alexander Rowe*; Mr. *Hartley*; Mr. *Scott*, of *Cawthorne*; Mr. *W. Hedley*, *Northumberland*; Mr. *Stephen Hartley*; and Mr. *John Lynn*; who finds the Diameter $= 2.69477$, and Height, 1.38948, *&c.* Mr. *James Potts* finds the Diameter 2.7, and Depth 1.4, in near Numbers.

XIX. QUESTION 468, *(marked* XVIII. 467,) *anſwered by Mr.* W. Pearſon, *of* North-Shields.

PUT $a =$ Sine of the *Aſcenſional* Difference; $b =$ Tangent of the Sun's Depreſſion at Midnight; and $x =$ the Tangent of Latitude: Then the Coſine of the Tangent $= \frac{1}{x}$. By *ſpherical* Trigonometry, as $x : 1 :: a : \frac{a}{x} =$ the Tangent of the Sun's Declination.

Again, as $b =$ the Tangent of *Depreſſion*, and $\frac{a}{x} =$ the Tangent of *Declination*; we have the Tangents of two Arcs given, *to find the Tangent of their Sum*, which will be $= \frac{1}{x}$. By *Simpſon*'s *Trigonometry*, 2d Edition, P. 57,

$$\frac{b + \frac{a}{x}}{1 - \frac{ba}{x}} = \frac{1}{x}.$$ By Reduction, $x^2 + \frac{a-1}{b}x = -a$. This *Quadratic* ſolved, $x = 3.58204 =$ the Tang. 74° 24′, the Latitude required.

And the Sun's *Declination* = 7° 59′, anſwering to the 10th of *April*, Rad. is ſuppoſed = 1, and the Declination ſuppoſed not to vary for a Day; and *therefore* I ſuppoſe the Anſwer to be ſufficiently near. W. W. R.

Mr. *Thomas Robinſon*, of *Biddick*, ſends his Proceſs, (not ſo ſhort as the above,) by which he determines the Latitude = 74° 25′, (and therefore confirms the Truth of the above Method and Numbers,) and Sun's *Declination*, 7° 58′, anſwering to *April* 10, and *September* 2.

Mr. George Coughron's *Proceſs is as follows.*

PUT x = *Sine* 30° 9′, the *Aſcenſional* Difference; t = Tang. 7° 37′, the Sun's *Depreſſion*, at Midnight, = the Difference between the *Co-latitude* and Declination; and x = the Tangent of the Sun's *Declination*; Radius = 1: Then will the Tangent of the Latitude $= \frac{1-tx}{t+x}$; and, by *Spherics*, as 1 (Rad.) : x :: $\frac{1-tx}{t+x} : s, = x \times \frac{1-x}{t+x}$; whence x is equal to $\frac{\overline{\overline{1-s}\big|^{2}-4st^{2}}\big|^{\frac{1}{2}}+1-s}{2t}$ = the Natural Tangent of 7° 59′, anſwering to *April* 10, or *September* 2. The Latitude is thence found to be = 74° 24′.

Mr. *J. Bean Lee*, and Mr. *Sedgwick*, at *Cottingham* School, find the Latitude 74° 24′ 4″ 26‴, and Declination, 7° 58′ 55″ 34‴. Mr. *Judſon* finds, by a Quadratic, 7.139027 = the Co-tangent; 7° 59′ (nearly) the Declination. Mr. *Grant*, of *Beverley*, finds the Sun's Declination, 7° 59′, nearly; and Latitude, 74° 24′. Mr. *W. Wilſon*, of *Norwich*, ſolved it. Mr. *Michael Taylor*, of *Marley-Hill*, finds the Latitude 74° 24′, and Declination 7° 59′. Mr. *Alexander Rowe* and Mr. *Hartley* ſolved it.

XX. QUESTION 469, *(marked* XIX. 468,) *anſwered by* Gemini, *of* Morpeth.

PUT x = greater Number = *Farthings* that each *Elector* paid; and put $2d$ = *Difference* betwixt that Number and the Number of Electors: then the *leaſt* Number of Electors will be $= x - 2d$; whence $\overline{x-2d} \times x = xx - 2dx$ = 1172693 Farthings, (= 1221l. 11s. 1d. 1q.) ſpent or paid by all the Electors. The Square completed, $xx - 2dxx + dd = 1172693 + dd$, whoſe Root $= x - d = \sqrt{1172693 + dd}$, the *leaſt* Root (a *whole* Number) that can be, next greater to $\sqrt{1172693} = 1082.9$, &c. But the *next* greater whole Number = 1083, whoſe Square = 1172889, which muſt be $= 1172693 + dd$; whence $1172889 - 1172693 = dd = 196$; whence $d = 14$: Therefore, $x - d = \sqrt{1172693 + 106} = 1083$; whence $x = 1097$, the Number of Farthings paid by each Elector, which is a *prime* Number; and $x - 2d$ = *leaſt* Number of Electors, = 1069, another *prime* Number, whoſe Product = 1172693 Farthings, (= 1221l. 11s. 1d. 1q.) ſpent at the *Election*, anſwering the Conditions of the *Queſtion*. W. W. R.

REMARK. *Had not* $dd = 196$ *come out a ſquare Number, (to get* d *in a whole Number,) a bigger ſquare Number muſt be aſſumed* $= 1172693 + dd$, *till* dd *does come out a ſquare Number. But to effect this (ſo as to make the Number under the* Radical *a ſquare Number) may be ſometimes difficult, when the Difference* 2d *is great, (and who can tell the contrary?) For, had there been* 141 *l.* 8 *s.* 4 *d.* 3 *q. ſpent,* $=$ 135763 *Farthings; then* $x-d = \sqrt{135763+dd}$; *then* d *muſt be* $= 471$, $dd = 221841$, *and* $x-d = \sqrt{135763+221841} = \sqrt{357604} = 598$; *whence* x, *the greater Number,* $= 1069$, *and* $x-2d = 127$, *the leſſer. But here it is harder to get* d, *than to try all the prime Diviſors to* 127. *This may be called fitting a Queſtion to the Solution, and not fitting a Solution to the Queſtion: A* Herculean *Taſk! requiring a better Way of Solution.* Palladium-Author.

Mr. *John Lynn*, of *Bolam, Northumberland*, and Mr. *James Potts*, of *Bedlington*, were the only Correſpondents beſides who ſolved this Queſtion in a Manner *ſimilar* to the former. —— Mr. *Michael Taylor*, of *Marley-Hill*, examined (he ſays) all the Diviſors, or *prime* Numbers, till he found the right Diviſor, to the Number of *Farthings*, in the Money ſpent, (a *Herculean Labour!)* which was performed alſo by Mr. *Coughron* and Mr. *Alexander Rowe*; and no other Correſpondents.

Several of our *(otherwiſe able)* mathematical Contributors ſolve this *Queſtion*, by inſiſting that the Number of *Farthings* ſpent at the *Election, viz.* 1172693, is a *prime* Number, and therefore *diviſible* only by 1; concluding that there were as many Electors as Farthings, each paying 1 Farthing; though as the Number of Electors was expreſſed to be the leaſt, according to this Way of *reaſoning*, there ſhould be but 1 *Elector*, who paid the *whole* Number of Farthings in the *Money* ſpent.

Similar to this Sort are the Queſtions *(not hard, yet curious and uncommon)* wanted for *Novelty*, after an Overſtock of *Ladies Age and Fortune* Queſtions, *Trees planted, &c.* grown nauſeous to the Reader's Palate; as treading ſo much in the *old Track* ſhews a *Pack-Horſe Dulneſs* and *Dearth* of Invention; proving that Miſs *Polly Stow's Filly* (in a ſimilar Way of ſpeaking) has *diſtanced* many of the ſtaunch *Courſers*, and beat the *Ponies* out of the Field.

N. B. *Dividing the Product of two high prime Numbers into its Parts or Factors, (which are but two,) is too difficult and tedious to perform by Trial without Analytics, except to the indefatigable Few, Mr.* Michael Taylor, *Mr.* Coughron, *Mr.* Rowe, &c.

XXI. QUESTION 470, *(marked* XX. 469,) *anſwered by Mr.* Nicholſon, *Land-Surveyor, and Mathematical Teacher, in the* Iſle of Wight.

THERE ſhould have been added, at the End of the Queſtion, (as ſent by the *Propoſer*, but I ſuppoſe omitted in the Haſte of tranſcribing,) *The Diameter of whoſe Orifice, at the Extremity of the Spout, is Half an Inch.* Whence, dividing 240, the cubic Inches of Air, contained in the Bellows, by the Area of the Spout, $= \frac{1}{2} \times \frac{1}{2} \times .7854 = .19635$, and the Quotient $= 1222.307$ Inches $=$ 101.8 Feet, the Length of the *Cylinder* of Air forced out of the Bellows in 1 Second. W. W. R.

Mr. *George Coughron* accurately obſerves, that the *Velocity* of the Air, *per* Second, through the Spouts of the Bellows, is *univerſally* = the Altitude of a *Cylinder*, whoſe Baſe is the *Area* of the Spout, and Solidity = the *Content* of the *Cavity*, divided by the Time, in *Seconds*, in which they are compreſſed together.

Mr. *Judſon* obſerves, that if the *Area* at the End of the Bellows-Spout $= a$, then $\frac{240}{a} =$ the *Velocity* of the Air through the *Spout, required.*

Mr. *Richard Dalton,* of *Pool,* obſerves the ſame; Mr. *James Lamb,* Preceptor, at *Aldbrough,* near *Hull,* obſerves and determines the ſame; Mr. *Ezekiel Walker,* of *Stapenhill,* the ſame; Meſſrs *Goodlad* and *Harland,* of *Cottingham* School, the ſame, making $\frac{240}{a} =$ the Column of Air diſcharged in 1 *Second* of Time.

Mr. *Michael Taylor,* of *Marley-hill,* puts $a =$ the Area of the Spout, $A =$ the Content of the Cavity of the *Bellows,* and $t =$ Time; then, $\frac{A}{at}$ (according to Mr. *Coughron*) $=$ the Velocity *per* Second, *required.* Who ſays that this *Queſtion* is *ſimilar* to one propoſed in *Fletcher's Univerſal Meaſurer and Mechanic*; *ſee P.* 186. Mr. *Alexander Rowe* ſolved it. Mr. *W. Hedley,* of *Northumberland,* the Poſt-Mark of whoſe Letter was *Newcaſtle,* (writing a beautiful modern Hand, not to be excelled) obſerves, that if the *Area* of the Spout is $= 1$, that then the Air's Velocity through the Spout will be at the *Rate* of 24 Inches *per* Second.

XXII. QUESTION 471, (*marked* XXI. 470,) *anſwered by Mr.* George Coughron.

THE *ſexageſimal* Quantity required is evidently *That,* whoſe *natural* Tangent is $= 1$, to the *Radius* (10000000000) of the Tables, as its *Logarithm-Tangent* will then be $= 0$. Now it is plain that it muſt be a very *ſmall Arc*; and, as the *Tangents* of ſmall Arcs are *nearly* equal to the Arcs themſelves, the *Arc,* in the preſent Caſe, may be ſuppoſed $= 1$; therefore, as 62835853072 (the Circumference whoſe *Radius* is 10000000000) : 1 :: $360^{\circ}\ 4^{v}.\ 27^{vi}.\ 19^{vii}.$ *&c.* the *ſexageſimal* Quantity *required.*

N. B. *If the Radius of the Tables were different, the Anſwer would be ſo.*

Mr. Judſon, *of* Beverly, *anſwers it thus.*

THE Logarithm-Tangent of $1' =$ 6.4637261293
The Logarithm of the Numbers 2908882.1676 . . . . 6.4637261293

Difference 0.0000000000

This *Difference,* being a Quantity *leſs* than any *aſſignable,* is the Logarithm-Tangent of $\frac{1}{2908882.1676}$ Part of 1 *Minute,* $= 0^{\circ}\ 0'\ 0''\ 0'''\ 0^{iv}.\ 4^{v}.\ 27^{vi}.\ 19^{vii}.\ 9^{viii}.\ ,05 +$. W. W. R.

REMARK. *We received no other Solutions to this* Queſtion *than the two foregoing, which are both excellent. See* Pall. 1764, *P.* 71.

The Double of $4^{v}.\ 27^{vi}.\ 19^{vii}.\ 9^{viii}.\ ,05 = 8^{v}.\ 54^{vi}.\ 38^{vii}.\ 18^{viii}.\ ,1$, *whoſe Complement to* $90^{\circ} = 89^{\circ}\ 59'\ 59''\ 59'''\ 59^{iv}.\ 51^{v}.\ 45^{vi}.\ 21^{vii}.\ 41^{viii}.\ ,9$, *to which Latitude if a Ship arrives, by ſailing from any given Latitude, on the* ſame *Courſe continually, by the Compaſs, ſo as to deſcribe the proportional* Spiral, *ſhe will be* exceedingly *near the Pole, and may, in Reſpect of Diſtance from it, be conſidered as in it. Whence the* Diſtance *from any given Latitude to the* Pole, (*or*

given

even the Equator) *and* Difference *of Longitude to her Arrival in the Latitude of* 89° 59′ 59″, &c. *will be correctly determined by the known* Analogies: *The finite Diſtance, nearly as true as if the* Spiral *were arrived at the Pole, and the* infinite *Number of Revolutions, (like an infinite decreaſing* geometrical *Progreſſion,) were ſummed to the Pole. For there is an infinite Number of Revolutions made from the ſaid* Latitude, *whoſe Half-Complement is* = 4v. 27vi. &c. *found by Mr* Judſon; *but of* inſignificant *Length, thence to the Pole, when ſummed; though the infinite Number of Revolutions will make the Difference of Longitude to be* infinite, *beyond the ſaid Latitude, to the Pole; which to that Latitude is finite only and determinable. To which Latitude* 89° 59′, &c. *(from Mr.* Judſon's *Numbers,) the* meridional *Parts will be* = 79157; *but of* indefinite *or* infinite *Quantity (as the natural Tangents are ſo) to the greater Latitudes, from thence to the* Pole. *Theſe* Properties, *of the Difference of Longitude, and* meridional *Parts to greater Latitudes, were not* at firſt *conſidered or* diſcovered, *when we reviſed and inſerted what is contained in P.* 71, Pal. 1764.

The Logarithmic Tangent of any ſexageſimal Quantity *leſs than* 4v. 27vi. &c. *(whoſe Logarithmic Tangent is* = 0*) is* minus *ſome* Quantity, *or a* negative Quantity.

PRIZE-QUESTION *anſwered by Mr.* Richard Judſon, *of* Beverley, Yorkſhire.

FIRST, At *Page* 400 of the *Royal Aſtronomer and Navigator*, the Sun's and Moon's mean ecliptic *Limits* are 18° and 12°, reſpectively, on each Side the Moon's *Node*; therefore the *Ratio* of the Number of *ſolar* and *lunar* Eclipſes is as 36 to 24, or as 6 to 4. But Mr. *Emerſon*, at Page 231 of his *Aſtronomy*, by taking in the Earth's *penumbral* Shadow, makes the *Limits* of the Moon's Eclipſe, at a *Medium*, 16° 47′, and of the Sun's, 16° 45′; and therefore concludes, taking one Year with another, there will be *two Eclipſes* of the *Sun*, and *two* of the *Moon*.

Secondly, By *Table*, *Page* 391 of the *Royal Aſtronomer and Navigator*, when the Sun is at its *neareſt*, and the Moon at its *greateſt*, Diſtance from the Earth,

The Moon's apparent Semi-diameter = 14′ 42″
The Sun's Ditto = 16 21

Sum 31 3

The Moon's horary Motion = 29 33
The Sun's Ditto = 2 33

The Moon's hourly Motion from the Sun = 27 0

Hence, $\frac{31.05}{27} = 1.15 = 1^h\,9^m$, the *Semi-duration*; and $1^h\,9^m \times 2 = 2^h\,18^m$, the *total* and *greateſt* Duration of a *ſolar Eclipſe*; according to *Cor. Page* 347 of *Emerſon's Aſtronomy*. Alſo, from the ſame *Table* and *Cor.* at *Page* 353,

The Moon's *Parallax* = 53′ 28″
The Moon's *Penumbra* = 31 3

Sum 84 31

Therefore, $\frac{84.506}{27} = 3.1296$, the *Semi-duration*, and $6.2592 = 6^h\,15^m\,33^s$, the *total Duration*, of the *greateſt general Eclipſe* of the SUN, or Eclipſe of the Earth, that can happen.

Thirdly, When the *Sun* and *Moon* are at their *greateſt* Diſtance from the Earth, then

The Moon's horizontal Parallax =	53′	28″
The Sun's Ditto =		10
Sum	53	38
Sun's Semi-diameter =	15	49
Difference	37	49
Earth's Atmoſphere		50
Semi-diameter of the Earth's Shadow	38	39
Semi-diameter of the Moon	14	42
Sum	53	21
The Moon's horary Motion =	29	33
The Sun's Ditto =	2	23
The Moon's hourly Motion from the Sun =	27	10

Then, by *Cor.* 1. *Page* 339 of *Emerſon's Aſtronomy*, $\frac{53.35}{27.16} = 1.9638 =$ $1^h\ 57^m\ 49^s$, the *Semi-duration*, and $1^h\ 57^m\ 59^s \times 2 = 3^h\ 35^m\ 38^s$, the *total Duration*, of the *greateſt* Eclipſe of the *Moon* that can happen. Q. E. F.

Solution to the PRIZE-QUESTION, *by Mr.* G. Coughron, *of* Newcaſtle.

THE *Ecliptic Limits* of a ſolar and lunar Eclipſe, at a *Medium*, are about 16° and 11½° from the *Node*, reſpectively: Now, as it is more probable that an Eclipſe will happen at any *one* Part within the Limits, than at *another*, it is evident, that the Number of Eclipſes will be as the *Lengths of the Limits*; and therefore the Number of *ſolar Eclipſes* to the Number of *lunar Ones*, that generally happen, are as 16 to 11½, or as 32 to 23, or 7 to 5, nearly.

Again, ſince the Duration of a *ſolar Eclipſe* may be equal to the Time that the Moon's horary Motion from the Sun is in paſſing over the Sum of the Change of the Moon's *Parallax*, during the Time of the Eclipſe, and the Sum of the Sun and Moon's Diameters; or (which is the ſame) equal to the Time that the Moon's ſaid horary Motion, leſs her mean horary Change in *Parallax*, during the Eclipſe, is in paſſing over the Sum of the Sun and Moon's Diameters; the *greateſt Duration* will evidently be when the *Sum of their Diameters*, divided by the *Difference* of the ſaid horary Motions, is *greateſt*. Now, the Sum of their Diameter, when greateſt, is about 66½, the ſaid horary Change in *Parallax*, when greateſt, (or the Sun *in the Equinoctial, the Place in the Equator, and the Middle of the Eclipſe at* Noon) = 15′, and, by ſuppoſing the ſaid horary Motion of the Moon = 30′, (which is as little as we can take it in this *Circumſtance*,) we have $66.5 \div \overline{30-15} = 66.5 \div 15 = 4\frac{1}{2}$ Hours, very nearly, for the *greateſt Duration* of a *ſolar* Eclipſe.

And, ſince the *greateſt Duration* of a *lunar* Eclipſe is equal to the longeſt Time that the aforeſaid horary Motion of the Moon is in paſſing over the Sum of the Earth's Shadow and the Moon's Diameter, we have, by ſuppoſing the ſaid Sum, when *greateſt*, 126′, and the *horary* Motion = 30′, as above, 126′ ÷ 30 = 4¼ Hours, *nearly*, for the *longeſt* Duration of a *lunar Eclipſe*.

Scholium. These Numbers are not the *exact Limits* of Duration, which was not my Deſign to give, but only an *Approximation*. To determine the *Limits* of Duration, *accurately*, requires a great Number of *Particulars* to be taken into Conſideration, (not here taken Account of,) which would render a Solution utterly *impracticable.* But theſe Numbers, however, as well as thoſe for the *Ratio,* will not widely differ from the Truth.

N. B. *A general Eclipſe of the Sun may laſt* 6 *Hours* — *The foregoing Duration being for a particular one.*

Remark by the Palladium-Author. Theſe two are the only Solutions we have received to the Prize-Queſtion, from among all our numerous Correſpondents: They ſufficiently illuſtrate the Talents of the two *diſtinguiſhed* Authors. To the former of whom (Mr. *Judſon,* of *Beverley,* in *Yorkſhire,*) the Prize, of 12 *Palladiums,* happens to be aſſigned by *Lot*; though the latter Solution, by Mr. *Coughron,* has its aſſigned Merit.

☞ *Novelty and Variety are ſtill wanted in the* Queſtions *furniſhed*; *Things plain and uſeful, and ſuch as can be applied to Practice in the Affairs of Life, and tend to Utility and the Improvement of* Science: *Things of Curioſity, Amuſement, and Entertainment, in the ſeveral Branches of Science, as well as in Literature, are alſo admitted, for general* Speculation, *as well as* Practice; *in which too much Sameneſs and Common-place are cloying to the judicious* Reader's *Taſte.* — But for Correſpondents to object to the *Defect* in the Choice of Queſtions ſent us, and inſerted, becauſe they are *ſpeculative* in an Exceſs, is the ſame as objecting to Queſtions propoſed by the moſt diſtinguiſhed Authors, (Mr. *Emerſon* and *others,*) would be, who propoſed numerous ſpeculative Queſtions, for *Patterns,* when referred to what is *practical* and *uſeful* in Affairs of Life.

All Books of *Arithmetic, Algebra, Geometry,* and *Fluxions,* containing Queſtions for the Learner's Practice and Improvement, are *taxable* with the ſame *Fault,* of being *ſpeculative,* (though referred to what is *practical*;) and, if the Books on arithmetical and mathematical *Subjects* contained Nothing but what is *immediately* applied to *Practice,* it would be difficult to find *Inſtances* enough, in the *practical* Way, for Patterns, to qualify the Learner in all the Branches of thoſe Subjects. The *Difference* ſeems to lie in the Elegance and Propriety to be found in the Choice of ſpeculative Queſtions and Subjects in ſome more than in others: For thoſe Queſtions, that are ſometimes ſent us for being *practical,* are nevertheleſs *ſpeculative* in their Solutions. It is the ſame by *Ænigmas, Queres, Queſtions, &c.* ſent us, as by *poetical* and *mathematical* Compoſitions of all Sorts: Thoſe, falling ſhort of the *Elegance* and *Perfection* contained in the Works of *Homer* and *Newton,* are objectable to by the *Critics,* who ſhew their Judgement in finding out *Defects* in others, which themſelves are not entirely free from. The *Prize-Queſtion* for laſt Year was not attempted to be anſwered (though a proper one) by ſome Correſpondents, who objected to the *general Defect* of all the Queſtions, as being more *ſpeculative* than *practical.* And Compoſitions on all Subjects are liable to the ſame *Objection,* of not being perfectly perfect; as all Men have their Degrees of *Wiſdom, Wit, Judgement, Strength, Ability, Breeding, &c.* one above another; yet all muſt be ſuited with their *Likings* according to their different *Taſtes, Fancies,* and *Capacities.* (*See Head to the Queſtions for* 1773.) In a COMMUNITY, conſtituted of Perſons of various *Taſtes, Likings,* and *Purſuits,* it would be as inconſiſtent for the *Verſifier* to object to the Objects of the *Philomath,* (for very few Men are properly *Poets* or *Mathematicians,*) as for the *Philomath* to object to the Objects of the *Verſifier*; and the ſame Reaſon holds good in other oppoſite *Likings.* The *Plan* of our *Palladium* (like that of a *Play-houſe*) requires that Correſpondents of all *Taſtes* and *Likings* ſhould be obliged, and not thoſe of any one *particular Claſs* to be obliged only. And, with Reſpect to the *Difference* in the *Rank* of Correſpondents, the *Adept*'s or *Gentleman*'s Name muſt ſometimes ſtand next to the *Smatterer*'s and *Mechanic*'s, as the *Eſquire,* the *Parſon,* and the *Cobler,* ſometimes ſit next each other at a Play, where all Sorts of Perſons, for the Audience, contribute to pay the *Expences of the Houſe,* buying the *Wit, Humour,* and *Buffoonery,* (or the refined and coarſe Sentiments,) exhibited on the Stage, contrived to ſuit all Capacities.

'Tis with our Judgements as our Watches, none
Go juſt alike, yet each believes his own. Pope's Criticiſm.

As the *Difference* of *Taſtes*, *Likings*, *Talents*, and *Capacities*, of Men, in a Community, contributing all together, anſwers the *different* Views and Ends of the *Whole*, (as deſigned by the great PLANNER of the *Univerſe*,) ſo the different Jacks or Keys of the ſame *Harpſichord*, or *Spinnet*, contribute, in their ſeveral Stations maintained, to conſtitute one *general* Harmony.

Condition, Circumſtance, is not the Thing,
Bliſs is the ſame in Subject or in King,
In who obtains Defence, or who defend,
In him who is, or him who finds, a Friend. Pope's Ethics.

CORRECTIONS. *By Mr.* Alexander Rowe.

An Anſwer to the PRIZE-QUESTION, *at P.* 65, Palladium 1771.

BY Mr. *Hodgson's Tables of Annuities*, the Values of the Lives of 37 and 32 Years of Age (Intereſt at 4 *per Cent.*) are 11.9836 and 12.7715 Years Purchaſe, *reſpectively*. Put 11.9836 $= a$, 12.7715 $= b$, and .04 $= c$; then we have this well-known *Theorem*, $a+b-\frac{ab}{a+b-abc} = 16.5413$ Years; the Value of the Life of the laſt Liver. Then we have this well-known *Theorem*, $\frac{150}{1-\frac{1}{\overline{1-.04}|^{16.5413}}} = 314.2677\,l. = 314\,l.\ 5\,s.\ 4\,d.\frac{1}{4}$ = the *true Annuity*, [required.

Note, $\frac{ab}{a+b-abc} = 8.2138$ = Value of the joint Lives.—This confirms the Truth of Mr. *Judſon*'s Solution, at *P.* 57, 58, *Pall.* 1772, (except Mr. *Coughron* is *deceived*,) and his *Concluſions* would doubtleſs have been preciſely the ſame, had the Intereſt-Tables, uſed by Mr. *Judſon*, been as *accurately* computed as thoſe by Mr. *Hodgson*. Mr. *Rowe* puts in his Claim of *Merit* for this *Solution*, and propoſes to draw a *Bill* on Mr. *Coughron*, but perhaps the *Bill* may not prove good or be accepted.

A correct Anſwer to QUESTION 433, *P.* 63, Pall. 1771, *as printed.*

PUT $xy = a$, then, by *Subſtitution*, the 1ſt Equation will be $a^3+a=3480$, ſolved, by *Trial and Error*, $a = 15.1319 = xy$. Now put $x+y=z$; then, from 2d Equat. we get $x+\frac{a}{x}=b$; th. $x^2+a = bx$; th. $x^2-bx=-a$. Whence, $x=\sqrt{\frac{b^2}{4}-a}+\frac{b}{2} = 17.90861$ *fere*; thence $y = .84495$, &c. [or *Vice verſa*. W. W. R.

P. 50, *Pal.* 1772. CD (I *apprehend*) ſhould be $= 40 \times 2 = 80$ Feet = Diſt. the *Timiſt* muſt ſtand from the *firſt* Rank, required; becauſe 3 Ranks have but 2 *Intervals*, each 40 Feet; and there ſeems to be 3 uſed in the Solution.

By Mr. *Coughron's Proportion*, *P.* 52, *Pal.* 1772, we get, by taking the Earth's Radius = 3984.6 Miles, the *Perſon*'s Diſtance from the Earth's Center = 6620.97, &c. Miles; th. 6620.97 − 3984.6 = 2636.37 Miles = the *required* Height or Diſtance of the *Obſerver*'s Eye from the Earth's Surface; agreeing *exactly* with my *Anſwer* ſent laſt Year.— *Corollary*. By Mr. *Sadler*'s Hint, *P.* 51. *ſame Pal.* $3984.6 \times .66164 = 2636.37$ Miles = *required* Diſt. as before.

With Regard to what is ſaid, *P.* 60, *Pal.* 1772, "*That the given Equation*, "$\overline{a^2-x^2} \times y^3 = x^4$ [*it was ſaid by* Boltonienſis] is *unlimited* and *impoſſible*:" *Quære*, whether this proves that the *Expreſſion* for the Solidity of the circumſcribing Cone (found from the above Equation) will not admit of a *Minimum?* [*Why was it not ſo proved by a proper Solution given?*] And *whether*, in $y = \left.\overline{\frac{a}{0}}\right|^{\frac{4}{3}}$, not $\sqrt[3]{a^4}$, the *Cypher*, or 0, be a *real Diviſor*, or *Multiplier*, ſince an *Unit*, or 1, cannot multiply or divide any *ſignificant Quantity* to alter it? [But *another Quantity* (or *repreſentative Number*) *than* 1, *dividing or multiplying* 1, *or another Quantity, will change its Value*; *yet* 0, *as well as any of the* 9 *Figures, or any Number compoſed of them, multiplying or dividing a Quantity, will be a real* Repreſentative *of Quantity (how much)*; *as* 0 *is a* real Repreſentative *in* $x^0 = 1$ *and* $\frac{1}{1000,\ \&c.\ \text{ad Infinitum}} = 0$.] *Whether* $\sqrt{a^4}$, *inſerted*, ſhould not be $\sqrt[3]{a^4}$?

[*The* 3, *at the Head of the radical Mark, might be left out by the Printer, comparing whoſe Miſtakes with thoſe of the Correſpondents in tranſcribing, we find they can make as many.*] —— What Mr. *Hartley* ſays, at *P.* 32, *Pal.* 1772, *is true*, but I knew Nothing of it when I ſent the *Quere*. —— Alexander Rowe.

Remark *by* Pal. Author. Hence Mr. *Newland*'s inſtead of Mr. *Rowe*'s Name might be put to the *Quere*, through *Miſtake*, in our tranſcribing.

Other CORRECTIONS *of* Pal. 1772, *by a very candid and ingenious Correſpondent.*

P. 37. L. 3. fr. Bot. for $64\frac{1}{2}$ read $46\frac{1}{2}$. P. 38. L. 2. for 8476×6.472 read $8.476 \times 6.472 \times 32$. Same Page, L. 5. fr. Bot. for $5y$ r. $51y$. P. 40. L. 5. for $x\sqrt{b-44-x^2}$ in the Denominator, r. $\sqrt{56+x\sqrt{b-100-x^2}}$. P. 41. L. 6. fr. Bot. for 1 *s*. 4 *d*. $\frac{1}{4}$ r. 8 *s*. 4 *d*. $\frac{1}{4}$. P. 42. L. 2. for $\frac{171}{2}$ r. $\frac{105}{6} = 17.5$. P. 43. Mr. *Sadler*'s Anſwer is only *true* when $AP = PG$, that is, when PB, produced, paſſes through D, in which *Caſe* it may be anſwered without *Algebra*. P. 44. L. 18. for *Triangle* r. *Angle*, and L. 19. for *inſcribed* r *contained*. Same Page, L. 7. from Bot. for $=$ r. $-$. P. 48. L. 3. fr. Bot. omit *y*, after *exterminating*. P. 49. L. 16. fr. Bot. for *Altitude* r. *Sine Alt*. P. 50. Mr. *Robinſon*'s Solution wrong. Mr. *Grant*'s is only a particular Caſe. P. 51. L. 20. for 3.5388, *&c.* r. 4.636, *&c.* P. 52. L. 27. after *Center*, r. and therefore the Height above the Surface $= 2636\frac{1}{2}$, *&c.* In *Fig.* E is omitted, where OG cuts the Circle. P. 53. L. 18. Omit $cxy^2 =$. In the *Fig.* Line OB is omitted P. 54. L. 13. fr. Bot. for $z-\frac{1}{3}$ r. $\overline{z-\frac{1}{3}}$. P. 56. L. 24. for $\sqrt{AD^2-DC^2}$ r. $\sqrt{AD^2+DC^2}$. L. 2. fr. Bot. omit the laſt $=$. L. 30. for BC r. $EC = \frac{1}{2}AC$. P. 58. L. 3. fr. Bot. for Cot. $\frac{AC-AB}{2}$ r. Cot. $\frac{AC+AB}{2}$.

Farther CORRECTIONS *of* PALLADIUM, 1772.

MR. *Michael Taylor*'s Name, of *Marley-hill*, belongs to *Queſt* 426 and 428, as he informs us. Hence the Neceſſity of Contributors putting their *Names* to each *Queſtion* and *Ænigma* ſent us, to prevent *Miſtakes* in tranſpoſing. This *Gentleman* ſays he has examined Mr. *Lowe*'s Solut. to XI. *Queſt*. 433, and finds his Method to be true, but his Numbers *erroneous*; for, by *Simpſon*'s *Exerciſes*, he finds $p = 15.1319734$ *true* to the laſt Decimal; therefore he ſays that his laſt Equation is *erroneous*; for it will be $s^3 - 30.263946s = 6028$. Hence, $s = 18.7535627$, (from *Simpſon* before,) and th. $\frac{1}{2}s \pm \sqrt{\frac{1}{4}s^2 - p} = 17.9086073$, or .8449553, the required Values of *x* and *y*.

Mr. *Taylor*, going over Solut. to XVII. *Qu.* 439, finds $DC = 2632.2708$, the Height of the *Obſerver's Eye* from the Earth; and $BC = 6611.14586$ Miles, the Height of his *Eye* from the Earth's Center, which Number, laſt Year, he made by Miſtake 66011.4586; and then taking the Earth's Rad. from thence another *Miſtake* remained, *viz.* 62032.5836 Miles.

Another *ingenious* Correſpondent, of *Northumberland*, (who writes an elegant and flowing Hand,) who ſigns *William Wimple, Philomath*, in one Place, in another, *Farewell*, has favoured us with the following *Obſervations*.

P. 40. L. 6. fr. Top, the Subſtitution is *wrong*; [*being a ſhort Word for* erroneous.] P. 47. that Meſſrs *Lynn*, *Hicks*, *Judſon*, and *Rowe*, too, are *wrong* in anſwering *Queſt.* 434. P. 54. Mr. *Hartley*'s Solution to *Qu.* 443 is *wrong*, for the *Propoſition* is not true. —— This *Correſpondent* propoſes 2 *Queres* thus.

1. *Which of the Anſwers to the* Prize-Queſtion, 1771, (ſee *Pal.* 1772, P. 57, 58,) *is right?*

2. *Which of the Anſwerers of Qu.* 339 *did ſee the Pole?* See *Pal.* 1772, P. 51, 52.

Will. Wimple (Succeſſor to *Will. Honeycomb*) has not ſhewn what the *Wrong* is, or of what Species or Kind; therefore it is hoped that *Will* will favour us with the *Particulars* for next Year's *Palladium*, if he expects to be obliged in an *Anſwer* to his 2 *Queres* concerning *Anſwerers*.

We thank Mr. *Wimple* for his 4 *Queſtions*, which are not, according to our *Plan*, for Schools, but for Adepts.

1. *Whether the Forces and Velocities of Bodies in Motion are equal? or whether the* Force *is as the* Square *of the Velocity*, as Leibnitz *and ſome of his Followers think?*

2. *What are the Diameters of two* non-elaſtic *ſpherical Balls, expreſſed by* $x^{\frac{m}{n}}$ *and* $x^{\frac{n}{m}}$, *moving the ſame Way, (the former with the Velocity* a, *and the latter with the Velocity* b,) *when the* Momentum, *after the* Stroke, *is the* leaſt *poſſible?*

3. *Where a* Cock *muſt be fixed to a* cylindrical Pipe *full of Water, ſtanding perpendicular to the* Horizon, *to* ſpout *Water* 3 Feet *from the Bottom, (the Veſſel being kept conſtantly full of Water,) when a* Cock, *being fixed* 5 Feet *from the Bottom of the ſame Pipe*, ſpouts *to the Diſtance of* 7 Feet, *on a horizontal Plane?*

4. *To divide a* Piece of Land (the Content 8 Acres) equally *between two Brothers, by a* Line *drawn parallel to the* Ordinate *of the bounding* Curve, Semi-Ordinate, *and* Abſciſſa, *the Equation of which* Curve *being expreſſed by* $ax^{\frac{1}{2}} = y^{\frac{2}{3}}$; *where* $a = 10$ Chains: *And to* ſhew *the* Dimenſions *of this* Land *ſo to be divided?*

Whoever chuſes to reſolve Mr. *Wimple*'s *Enquiries* are now at Liberty to do it.

Mr. *Pearſon* informs us, that the Number 2697, at P. 52, laſt *Pal.* ſhould have been 2637; [*no Wonder, when the Correſpondents make as great Miſtakes in their Tranſcriptions as the Printers in their Compoſures.*] Who obſerves, that *Queſt.* IV. in *Pal.* 1772, by Mr. *Robinſon*, was propoſed as it is before he was born; for he found it among ſome of his *old rubbiſhing Papers*, and believes it was a *Diary Queſtion*, as there is a *Diary Prize-Queſtion* propoſed on the ſame Sheet. He wonders that Men of Reputation ſhould fall into ſuch diſreputable Practices; and ſays that it was alſo ſent to the *Gentleman's Diary*. He would have a Law made by *Apollo* to *annul* ſuch *Practices* for the future; to which we ſubſcribe. *Pal. Author.*

The Letter (from a *Northumberland* Correſpondent) ſaid to have been paid for to us, is a *Miſtake*; it was refuſed in *London*, (becauſe not paid,) where it was directed into the Country, and double charged: It was received at *Portſmouth*, (by Miſtake of a Friend,) but, after opening and extracting the Contents, returned back whence it came, to the proper *Owner*.

☞ *At an Election, a great Number of Electors can better afford to* treat *one* Member, *than one Member to treat the* whole Number *of Electors, for* public Good.

Mr. *Hayes* obſerves, that the 2d *Queſtion*, propoſed by himſelf, is in *Simpſon's Algebra, 2d Edition*; that the 1ſt *Queſtion* is ſimilar to one in the ſame Book, P. 369 but ſays he was ignorant of it when the Queſtion was ſent.

CORRECTIONS

CORRECTIONS *of this Year's* PALLADIUM, 1773.

P. 9. L. 9. fr. Bot. for *May* 1, read *April* 1. P. 31. L. 7. for *Phantom* read *Phantoms of the Night*. *Phantom* (though but a *ſingle* Letter ſhort) is a Deſtruction of the true Senſe and Idea, and great Injuſtice done to Mr. *Gumley*'s *enchanting and rapturous Muſe!* —— PALLADIUM-AUTHOR.

NEW ÆNIGMAS.

Ænigmas ſerve to ſtrike the Mind;
That Truth, by ſearching, you may find.
Fable, Alluſion, Simile,
Pleaſe and improve by Imagery:
Theſe Things pleaſe ſome; thoſe others ſuit;
And each admires his own Purſuit.

I. ÆNIGMA 227, *by Mr.* Iſaac Gumley, *of* Counteſthorp, Leiceſterſhire.

MAKE Room, ye ſcribbling *Wits*, make Room,
Now I to ſhew my Face am come. —
I always on the *Ladies* wait,
In ſingle or in married State;
And, ſooner than I'll ſtay with Men,
I'll lie confin'd in ſome dark Den.
I am a briſk and lively Spark,
And love to play with *Doll* i'th' Dark:
Yet, — hark! ye *Ladies*, — what d'ye think?
Some ſay that I'm inclin'd to *Drink*;
Yet *Ale* I always have defy'd,
And Liquors ſtrong I can't abide;
Of *Wine* I likewiſe am a Hater,
Nor have I ought to do with *Water*.
In Knowledge I've great Progreſs made,
And am a Friend to ev'ry Trade;
But *Biſ—ps*, *Pa—ns*, and ſuch Fellows,
Who make good honeſt Huſbands jealous,
Who preach and pray, to fill their Purſes,
Though Nought ſo frequent as their Curſes, —
With them I no Communion hold,
Though I'm likewiſe a Friend to *Gold*.
Now let my Name and Uſe be told.

II. ÆNIGMA 228, *by the Rev.* T. Vaughan, A. M. Morpeth.

ÆNIGMATISTS, come tell me now,
Why I am never thought, by you,
A Subject worthy to appear,
'Mongſt others of leſs Note, I fear.
I ſerve my Country very well,
Though in a *Cave* I'm known to dwell.
There's not a Perſon, in the Land,
Who would not take me by the Hand.
Even to *George*, our ſov'reign King,
I Pleaſure both and Profit bring.
Men very often, without me,
Would be reduc'd to Miſery.
But then again, I needs muſt ſay,
At other Times I kill and ſlay.
My *Parents* are a curſed Crew,
For Wickedneſs out-done by few.
Take this one Hint, (none can deny,)
I the whole *Navy* do ſupply.

III.

III. ÆNIGMA 229, *by Mr.* Iſaac Gumley, *of* Counteſthorpe.

SINCE Subjects quite mean have engroſs'd whole Pages,
Permit me to ſpeak, *ænigmatical* Sages.
We're Twins by our Birth — this you freely will own, —
As ſoon as our Properties to you are known :
And truly we are as much like, to each other,
As ever was any Man unto his Brother.
We boaſt not our Riches and lofty Deſcent ;
Our Lot, high or low, can afford us Content ;
Yet ſometimes with Envy — But here we muſt hold :
You ſee us beſpangled with *Di'monds* and *Gold*.
To travel we have, from our Births, been addicted,
For that very often our Dreſs is neglected.
In *London* we've been at the *Operas* and Balls ;
The Tower and *Muſeum*, as well as St. *Paul's* :
At the *Park* and St. *James's* we likewiſe have been,
And often have walk'd with the King and the Queen.
We've been in each City and Village i'th' Nation,
And travell'd through Kingdoms beyond the wide Ocean.
With the *Hero* we go, in the Midſt of the War,
And wait upon *Miſs* when ſhe plays the *Guitar* ;
Yet our Station, *dear Ladies*, quite humble is found ;
For our Faces full often embrace the cold Ground.

IV. ÆNIGMA 230, *by Mr.* Nicholſon, *Preceptor, at* Stanton, Northumb.

1. FROM Mother Earth our Parent came,
But diff'rent is our Form ;
Man faſhion'd us, and thence our Name ;
For we his *Work* perform.
2. Some round, ſome ſquare, and ſome oblong,
So diff'rent we are made ;
One *Office* does to us belong ;
We aid the *Workman*'s Trade.
3. I in my *Midſt* a Mouth have got,
Sufficient for my Food ;
Whether you think it hard or not,
I'm forc'd to prey on Wood.
4. One Tooth of *Steel* is all I have,
By which my Food I eat ;
Though little at a Time I crave,
I Eating oft repeat.
5. I've neither *Entrails*, Head, nor Brain,
And only have one Hand :
Yet ſtrange ! my *Back* does that ſuſtain ;
By which you me command.
6. Upon my *Belly* oft I glide ;
Make *rugged* Ways quite ev'n :
And now my *Name* you may decide,
By what Account I've giv'n.

V. ÆNIGMA 231, *by Mr.* Stuckfield, *of* Stepney.

I ſtrangely am form'd ; for my Bellies are two :
To contain all my Food, one Belly won't do.
And ſhould you exclaim, that your two-belly'd Creatures
Make Proviſions ſo dear, (as they muſt be great Eaters,)
In me 'tis not ſo — and to you I appeal,
That I ſeldom, if ever, eat much at a Meal ;

And I'm ſure you will own that Nothing is clearer,
Than that my two Bellies make Nothing the dearer;
And though 'twill appear that I never did Ill,
I am never allow'd my two Bellies to fill.
From Belly to Belly my Food is ſtill haſting,
As faſt as your Hours and your Minutes are waſting.

VI. ÆNIGMA 232, *by Mr.* Joſ. Scot, *of* Cawthorne.

TO *Vulcan*'s Sons my Form and Shape I owe,
And for my Uſe, moſt Men my Merits know:
The wretched *Miſer* and the greedy Elf
Rely upon me, as their *ſecond* Self.
My Purpoſes are variouſly aſſign'd;
In *Muſic* and *Mechanics* me you'll find.
I oft aſſiſt the learned Commentators,
And have been made for *lunar* Navigators.
The *Pope*, through me, preſcribes to each his Doom,
And ſends you to your laſt and wiſh'd-for Home.

VII. ÆNIGMA 233, *by Mr.* J. Scott, *of* Cawthorn, Yorkſhire.

EXACTLY Letters five my Name compoſe;
Backward or forward read, the ſame are thoſe.
I to the Ladies have a near Relation:
From whence you'll quickly find my *Appellation*.

VIII. ÆNIGMA 234, *by Mr.* Michael Taylor, *of* Marley-hill.

I am oft *ſtigmatiz'd* for my Name, farther North;
Am *firſt* brought to Bed, then a *Bed* brings me forth.

IX. ÆNIGMA 235, *by Mr.* Iſaac Gumley, *of* Counteſthorpe, Leiceſterſhire.

WHILE other *Bards* on War exalt their Strain,
Fields ſtain'd with Gore, and dreadful Heaps of ſlain;
While others ſing the *Charms* of her they love,
The Works of Art, and wond'rous Works of *Jove*;
Dear *Ladies*, we, like proud, ambitious Elves,
Theſe Subjects wave, and ſing about ourſelves.
In ancient Climes, where *Euclid* liv'd of old,
Where Trees bear Spice, and Rivers teem with Gold,
Where *Sol* intenſely ſheds around his Heat,
Where *Chaos* reigns, and Monſters new retreat,
We were produc'd; and firſt appear, to Sight,
The Merchant's Friend, and Sage's chief Delight.
But let us leave thoſe *diſtant* ſultry Climes,
And come to *Britain* and the preſent Times.
In ev'ry Town, in ev'ry Houſe, we're ſeen,
From th'humble *Cot*, to the Palace of the *Queen*.
Both *rich* and *poor* our kind Aſſiſtance crave,
The young, the old, the Coward, and the brave.
In Science, *Newton* ne'er ſuch Depths had gone,
Had not our *Uſes* unto him been known.
And you, *dear Maids*, our needful Help require,
Eſteem our Worth, and Uſefulneſs admire:
Yet we're no *Beaux*, beſpangled o'er with Lace,
Whoſe Words and Actions are their own Diſgrace:
But, *deareſt Ladies*, we're moſt awkward Creatures,
Of monſtrous Shape, and diſproportion'd Features:
Large *Heads* ſome have, yet are quite dumb and blind,
To which a *Tail* without a Body's join'd:
Hump-back'd, wry-ſhoulder'd, others you may ſee,
Though, in our Form, there are no two agree,

But, hold — enough is ſaid: We make no Doubt,
But you will find our *Appellation* out.

XI. ÆNIGMA 236, *by the Rev.* Thomas Vaughan, A. M. *of* Morpeth.

OUR *Parent* was a Man of great Renown,
But now he is much humbled and pull'd down:
We have been very num'rous, as 'tis told,
And were in diff'rent Stations often ſold.
Our *Price* is leſſen'd, you may now obſerve,
In ev'ry Nation which we us'd to ſerve;
But moſt of all in *England*, where Men ſneer,
And tell us plainly, we've no Buſineſs there.
Emp'rors and Kings (our Value once was ſuch)
Thought that for us they ne'er could pay too much.
It would ſurprize you greatly but to hear
How much eſteem'd we once were ev'ry where.
O'er Grace and Juſtice we had potent Sway,
And Men did our Authorities obey:
Such pow'rful Properties to us were giv'n,
As to blind *Zeal*, that ſhews the Road to Heav'n.
But now Folks Eyes are open, they perceive
That we are calculated to deceive.
Take theſe Hints more, which to relate is juſt,
'Twill give you Caution not in us to truſt;
We're all Romance, and Fable, and Deceit,
And may be counted ev'ry one a *Cheat*;
Yet deem'd *infallible*, we are, by ſome,
And wear the *Horns* of ſuperſtitious *Rome*.

XI. ÆNIGMA 237, *by Mr.* Bayley, *of* Middleton, Yorkſhire.

A Word, of two Syllables, Meaning implies,
What we ſhould abſtain from, if prudent and wiſe;
When read the *reverſe*, the Meaning will ſhew
What *moſt*, in Reality, wiſh they may do.

XII. ÆNIGMA 238, *by Mr.* W. Swift. *of* Stow.

LIKE bluſt'ring *Boreas* ſometimes I appear,
And, by my *Breath*, you know that I am near;
Like *him*, I puff, and ſwell, and rage amain,
And riſe, and fall, and ſwell, and puff again:
Sometimes my Fury riſes to a Storm,
And yet I help to keep the *Ladies* warm.

XIII. ÆNIGMA 239, *by Mr.* T. Sadler, *of* Whitchurch.

WHERE *ſylvan* Scenes attract the Eye,
We've rear'd our Heads, and ſoar'd on high;
And where we quit that firſt Retreat,
By human Art, we're made complete.
Behold us walk with equal Feet,
And play at *Gambols* in the Street.
Sometimes we ſtalk through dirty Lanes,
To pleaſe the jocund Village Swains;
And trip, like *Fairies*, on the Green,
Where Mirth and Jollity are ſeen.
Behold, we've each a wooden Leg!
But never were brought up to beg.
We've neither Hands nor Arms, ye Fair,
But *Loops* and *Hoops* we have good Share.
We through the Silver Streams convey
'Squire *Richard*, in a ſportive Way;

Though Nature's Gifts we but abuſe,
Like Head-dreſs high, or high-heel'd Shoes;
Sophia's Delight, at *Horner*'s Coſt,
Each ſet on Horſeback — riding Poſt;
One in Silk Stockings *caſ'd*, the other
In Silver *Habit* grac'd, with Hat and Feather:
So *Groom* and *Chambermaid*, both by her Merit
Exalted by the Squire, high Worth inherit;
The Chamber-pot forgot, and Stable,
For flatt'ring Friends now keep a Table.
We ſtride, like *Sophia*, o'er a Stile,
To ſhew our *Legs*, and make you ſmile:
The *bloody Butcher*, with his Steel,
Walk'd not ſo tall, nor yet genteel,
Since *firſt* he learn'd to kill a Hog,
And did become a *bloody Dog!*
When he attended *Sophy*'s Side,
And *touch'd* her Heart, and pleas'd her Pride;
Having juſt run away from Plough,
And ſtuck a fatted greaſy Sow.
Some Streams are deep, but yet are *ſtill*;
Pſhaw! you may ford them, if you will.
And *Patagonians* we appear,
Nor *Depths*, nor *Widths*, have we to fear.

☞ *Whoever ſends the beſt Anſwer, in Verſe, to the following Ænigma, before* Candlemas-day *next, has a Chance, by Lot, to win* 5, 4, *and* 3 Palladiums.

PRIZE-ÆNIGMA, *by Mr.* Sadler, *of* Whitchurch.

IN *Woodlands* or down in your ſweet pleaſant Vale,
Where warbling *Choriſters* ſing their ſoft Tale,
My Parent reſided for many a Year,
'Till a humble Mechanic firſt made me appear.
When the Time was elaps'd that my *Parent* muſt fall,
Strange *Havock* was made 'midſt my Friends great and ſmall;
They were flead, cut, and mangled, in ev'ry Part,
Split, hung, drawn, and quarter'd, and ſtab'd to the Heart!
Then an *Artiſt* ſtept forth, who to me laid a Claim;
Form'd me juſt as he pleas'd, and ſo gave me a Name.
To an *Ale-houſe* he took me — the *Landlord* he ſmil'd,
And careſs'd me as cloſe as a Mother her Child.
To pleaſure his Cuſtomers now I began,
Beau, Belle, Pedant, Coxcomb, Maid-ſervant, and Man:
I pleas'd theſe a while; but, alas! very ſoon
I was curs'd and deſpis'd — nay, before the next Noon.
Soon after, I got into Favour again,
With gentle and ſimple, and *Hob* of the Plain:
The Neighbours around much about me did talk,
And four *dapper* Blades o'er my Belly did walk:
Lilliputians they are, dreſs'd in Sable or Black,
That keep an Account of a doubtful Attack.
A bold *Braggadocio* the *Combat* now tries,
Who endeavours, by Stabbing, to put out my Eyes;
For my Eyes, like to *Argus*', great Numbers you'll ſee,
On my Back and my Belly, belonging to me.
So now, my *dear Ladies*, ſo blooming and fair,
My Name, to the World, you may pleaſe to declare.

Remark, by the *Palladium*-Author. *Ænigmas ſhould be confined to the Laws of Fable, Alluſion, Allegory, and Metaphor; without being too plain or too obſcure. Ænigmas on complex Ideas, or* remote Subjects, *ſhould be avoided.— The beſt Anſwers, and Things the moſt applicable, excellent, curious, and uſeful, ſent, are preferred.* Some Ænigmas and Rebuſes, propoſed, are too obſcure and unlimited. *Ænigmas, Queres. Rebuſes, Paradoxes, and Queſtions, ſhould be confined to Novelty, Curioſity, and Uſe. as much as poſſible.*

NEW QUERES.

By Queres, *either quaint or ſhrewd,*
You find out Truths a Multitude.

I. QUERE 226, *by Mr.* Iſaac Gumley, *of* Counteſthorpe, Leiceſterſhire.

YE *lovely Fair*, ye ſoft enchanting Maids,
12 That love the Town, and haunt the rural Shades,
Say, if ye can, when KISSING firſt aroſe,
That *Mark* of LOVE, and Soft'ner of our Woes;
Say, if you can, inform your faithful Swains,
And you ſhall have *a hundred* for your Pains.

II. QUERE 227, *by Mr.* John Bayley, *of* Middleton, Yorkſhire.

Who was the *Wife* of *Lot?*
Can you tell, or can you not?

III. QUERE 228, *by* Gemini, *of* Morpeth.

13 DEFINE the *Diff'rence* of what you may call
A Conſcience that's *large*, and *no* Conſcience at all.

IV. QUERE 229, *by* Will. Wimple, *Succeſſor to* Will. Honeycomb.

IN what *Parts* of the World, and what *Times* of the Year,
Is the Sun's Heat the *greateſt*, and *leaſt*, — make appear.

V. QUERE 230, *by Mr.* Alexander Rowe, *of* Cornwall.

14 A heavy Body, being ſunk to the Bottom of any *Fluid*, will it require more or leſs Weight than *itſelf* to raiſe it up?

VI. QUERE 231, *by* R. C. *of the* Iſle of Wight.

15 WHEN were *Guineas* firſt coined in *England?* and why were they ſo called?

VII. QUERE 232, *by* Ens Rationis.

IF *whatever is, is right*, in the *natural* World, (according to Mr. *Pope's* Ethics, in his *Eſſay on Man*,) and God has formed Nature and her Operations, 16 in all Reſpects, for the *beſt*, why is Rain, or elementary Weather, *prayed for in Churches?* or why is any Thing prayed for, by the human Species, of *defective Judgement*, except (according to the wiſe *Socrates*,) *that God would grant ſuch Things as are fit for us, and keep away ſuch Things as are not fit, in* Reſpect of particular and general Good? — And why are not *Curſes* baniſhed all catholic and Chriſtian Churches, if God and his Providence can award Juſtice to *Criminals*, without the *Imprecations* beſtowed from Man's pitiful, partial, and weak Judgement, in this Reſpect.; whoſe whole irregular Race, governed by a lawleſs Will, ſeems to be greatly favoured by a *gracious and good God*, in not being long ago extirpated from the Face of the whole Earth, for the enormous Treſpaſſes of the greater Part of them, committed againſt their *Maker* and *one another?*

VIII. QUERE 233, *by* Orthodox.

WHETHER a Perſon of the *ſame* Name with *that* ſigned to the printed *Libel*, (againſt the *Palladium*-Correſpondents,) going to ſeveral of them, at the Beginning of the Year 1771, was not retained, and ſince continued, as an *Aſſiſtant*-Obſerver of the *Moon*, at *Greenwich Obſervatory*, about the ſame Time that the ſeveral *printed Libels* were ſo induſtriouſly conveyed? If ſo, ſhould not thoſe *Libels* be *reverberated* back to the *right Owners*, or *Libel-Makers*, (whoever they are,) at *Greenwich*, whether *Jews, Turks*, or *Infidels*, or whether of the *maſculine* or *feminine* Gender? Or ſhould not as polite a Preſent be made, in Return, by the *Palladium Correſpondents*, to the ſame *Place* from whence they were ſo obligingly ſent?

⁂ *Whoever anſwers the following Quere, in the moſt rational Manner, ſhall be entitled, by Lot, to* 4, 3, *and* 2 Palladiums, *reſpectively.*

PRIZE-QUERE, *by* Philo-Sophia.

To the Necromancers of Longitude, for executing the Office of Libeller, Obſervator, *and* Calculator-general *of the* Moon, *in the* lunar Regions. *By* Inveſtigation,

THE *Huſbands* to *Fathers* in Families find,
And the *Cuckow-born* Birds to the *true* of the Kind;
And likewiſe the Ratio of *Cuckows* in Marriage,
To the *natural*-born, without a *Miſcarriage*.
If the *Cuckow*-born Birds from the *true* can't be known,
Nor Father and Son can be ſure of his own,
Except by the Likeneſs, (for who is ſo wiſe?
As Women, both *married* and *ſingle*, tell Lies,)
How ſhall Truth be found out, of the one or the other,
Who's Father and Son, and who Siſter and Brother,
Except by the Means of an *Inveſtigation*,
Since Women for ever would follow the *Faſhion*?
Is the Credit the leſs to be *natural*-born, *
Since *Cuckows* in Marriage are ſubject to Scorn?
Is a *Baſ—d* more Shame than a Son of a *W—re*?
My *Sophia* was wed; but ſhe wanton'd before.

* *Like Perſons of the firſt Rank and Diſtinction.*

NEW REBUSES.

By Rebuſes *you Things explain;*
The Way you chooſe to rack your Brain.

I. Rebus, *by Mr.* G. Lacey, *of* Bridport.

WHAT in ſoft murm'ring *Accents* glides ſmoothly along,
And courts the young *Poet*'s ſweet paſtoral Song;
What enables us ſafely the ſame to paſs over;
When *join'd*, will the Name of a *large Town* diſcover.

II. Rebus, *by Mr.* Swift, *of* Stow.

A Native, born in *Africa*,
Will tell my *Fair-One*, Queen of *May*.

III. Rebus, *by Mr.* William Oliver.

WHAT *Birds* do when they *breed* their Young,
(No more I need or can ſay,)
Will ſhew where lives a *blooming Maid*,
My mild, good-natur'd *Nancy*.

IV. Rebus, *by Mr.* John Bailley, *of* Middleton, Yorkſhire.

A *Meter* of Time, and what's *Latin* for *and*,
Will ſhew you a *Village* well known in this Land.

V. A Rebus-Anagram, *by* Titus Veſpaſian.

A *Cardinal* Point, if right you tranſpoſe,
A Town's Name in *Yorkſhire* to you will diſcloſe.

VI. Rebus, *by Mr.* J. Stuckfield.

TO the chief Part of *Jacob*, add Part of a *Swine*,
And a *Town*'s Name you'll ſee, where the *Proſpect* is fine.

VII. *A magical* Rebus, *by Mr.* J. Bayley, *of* Middleton, Yorkſhire.

TO four Sixths of a *Bird*, that ſings once a Year,
Join the Half of *Old-Nic*, and a *Sprite* will appear;
A Longitude-Sprite, that appears among *Witches*,
And ſeen with a *Lady* that wears the *big Breeches*;
A Lady and Witch, when undreſs'd and in Feathers,
Careſs'd and admir'd by the *Longitude*-Brothers;
Of *Titles* renown'd, enough to excite ye;
The *Sophys* of *Perſia* not more can invite ye:

You may conjure *this* Witch by a *Key* and the *Bible* ;
But the *Maſculine* Sprite is beſt charm'd with a *Libel.**

* *The Encourager, Receiver, and Diſpoſer of ſtolen Goods is equally criminal with the Thief.*

VIII. Rebus, *by a* Highland *Gentleman.*

WHAT's wore on the *Head*, and *where* Heroes are ſlain,
Will tell you the *Fair* that I wiſh to obtain.

IX. Rebus, *by a Drummer.*

JOIN what *Sophy* loves to five Fourths of a *Yard*, * In *Scotland*.
And 'twill ſhew you a *Place* * where I have mounted Guard.

X. Rebus, *by Miſs* Sally Hill, *of* Hill, *near* Gibſide, Newcaſtle.

JOIN the *firſt* of a Nymph to *three Fifths* of a Swain,
And a *beautiful Bird* you will ſee very plain.

XI. Rebus, *by Miſs* Sally Hill, *of* Gibſide.

THE firſt of *Good-Nature*, and next Half to that,
What tickles and teazes, will tell very pat.

XII. Rebus, *by Mr.* Michael Taylor.

TO the leaſt among Dwellings, a heavy Weight add,
And a Name, much admir'd among the Ladies, is had.

NEW PARADOXES.

By Paradoxes *you ſurprize*
And uſeful Truths *diſcern from* Lies.

I. Paradox, *by Mr.* W. Wilſon, *of* Norwich.

A Cone of Gold one did behold,
Who did preſume to ſay,
When on its *Baſe* he that did place,
A *hundred* Tons did weigh :
But, when *inverted*, he aſſerted,
Tons *ninety-nine* its Weight.
Then let us ſee how this can be,
And tell the Cone's true *Height*.

II. Paradox, *by the Rev.* Thomas Vaughan, A. M. *of* Morpeth.

I'm a Word of *ſix Letters*, juſt *Syllables two* ;
I'm the ſame when read *backward* or *forward* by you :
Take *two* Letters from me, read which Way you will,
I'm the ſame, and a Word of *two Syllables* ſtill.

III. Paradox, *by Mr.* R. C. *of the* Iſle of Wight.

A Man, in the *Iſle of Wight*, rode 670 Miles in an Hour.

IV. *A geometrical* Paradox, *by Mr.* John Trevor Simmons, *jun. of Mr.* Orchard's *School,* Goſport, Hampſhire.

FROM one ſquare Window's *Space* another frame,
Juſt *half* as big ; both Heights and Breadths *the ſame*.

NEW QUESTIONS.

Queſtions *are made to* exerciſe *your Parts,*
In ev'ry *Branch of* mathematic *Arts* ;
Propos'd in Rhime, *or not, is not the Thing* ;
Each Queſtion ſhould its Uſe or Pleaſure bring.
For Uſe *and* Fancy *we our Lives live o'er,*
For Practice *much, for* Speculation *more* ;
And diff'rent Taſtes *with diff'rens* Likings *ſuit* ;
All Men are born in Liking *abſolute.*

I. Question 471, *by the* Palladium-Author, *jun.*

A Number of *Seamen*, in the laſt War, received 275l. 3s. 6d.$\frac{3}{4}$, *Prize-Money*, (each receiving alike to a *Farthing*) ; what did *each* Man receive ? and what was the *Number* of Seamen ?

II.

II. QUESTION 451, by *Miſs* Polly Stow.

A Gentleman bought an Eſtate for a certain Number of different Pieces of Money, (*viz. Guineas, Half-Guineas, Quarter-Guineas, Half-Crowns, Shillings,* and *Sixpences,*) contained in 6 ſeparate Bags; and the *Pieces* of the *greater* Value were contained in a Bag having the *leſs* Number of them: The Number of Pieces in each Bag, being multiplied together, produced 118,243.529,689.909,193 (18 Figures). What *Number of Pieces*, did each Bag contain, and how much did the Eſtate coſt?

Note, *The Number of all the different Pieces, in one Sum, was equal to* 4418.

III. QUESTION 473, by *Miſs* Sally Hill, *of* Hill.

BEING aſked, by a Gentleman, the *Time* of the Day, looking on the Clock, I anſwered him, it was between 10 and 11; and that the *Hour* and *Minute* Hands of the Clock were *exactly* together. *What Time was it, by a ſhort and general Rule?*

IV. QUESTION 474, by *Mr.* John Trevor Simmons, *jun.* of Goſport.

A Cock, A, being ſet open, will fill a Reſervoir of Water, by itſelf, in 6 Hours; a Cock, B, by itſelf, in 8 Hours; and a Cock, C, by itſelf, in 10 Hours: If all which Cocks are ſhut, and the *Reſervoir* is full, a Cock, D, being ſet open, will, by itſelf, empty the *Reſervoir* in 9 Hours; a Cock, E, by itſelf, in 11; and a Cock, F, by itſelf, in 13. In what Time will the empty Reſervoir be full, when all the Cocks, A, B, C, D, E, F, are ſet open together? — *by a ſhort and general Method.*

V. QUESTION 475, by *Mr.* John Scott, *of* Cawthorne.

A Gentleman bought a *Ring* of fine Gold, which coſt 1l. 1s. 1d.$\frac{1}{4}$, at the Rate of 4l. an Ounce; the *Thickneſs* of the Ring, when added to its outward *Circumference*, = 2.8 Inches: *Required* the *Dimenſions* of this *Ring*.

VI. QUESTION 477, by *Mr.* T. Sadler, *of* Whitchurch, Shropſhire.

LATELY loſt, by a *Lady*, what may be found from the *following Equations.**

*

$$\left.\begin{aligned} v^2+w+x+y+z&=106\\ v+w^2+x+y+z&=70\\ v+w+x^2+y+z&=50\\ v+w+x+y^2+z&=322\\ v+w+x+y+z^2&=392 \end{aligned}\right\}$$

Required the Numbers anſwering to *v, w, x, y,* and *z*, ſignifying the Numbers of the Places of the reſpective Letters they repreſent, in the *Alphabet*; and thence to find the *Word* they compoſe.

VII. QUESTION 478, by *Mr.* Sadler.

From theſe *Equations*, here in View,†
Ye *Analyſts*, declare,
What *Sophia* ‡ did conſent to do,
To eaſe her *Horner*'s§ Care?

†

$$\left.\begin{aligned} x+yz&=41\\ y+xz&=89\\ z+xy&=109 \end{aligned}\right\}$$

Where *x*, *y*, *z*, repreſent the No of the *Places* of the Letters in *Alphab.* compoſing the *Word.*

§ *One of her Lovers.* ‡ *The genuine Love-Letters of this enamoured Lady, in her own Hand-Writing,* (*incomparable* Italian,) *are depoſited in the* Palladium-*Author's Poſſeſſion; and alſo thoſe by Mrs.* Anne Wheedle *in the ſame Hand. A fond* Exeter *Lady's in a different* Scrawl.

VII. QUESTION 478, by *Meſſ.* J. B. L. *and* Sedgwick, *of* Cottingham-*School.*

$$\frac{\sqrt{x^3}-\sqrt[3]{x^4}}{\sqrt[3]{x}}=x.$$

Required the Value of *x*.

VIII. QUESTION 479, by *Mr.* J. Trevor Simmons, *jun. of Mr.* Orchard's *School.*

TO divide a *hundred Guineas* betwixt 4 *Perſons*, ſo that one Part being *increaſed* by 5, another Part *diminiſhed* by 5, another Part *multiplied* by 5, and a fourth *divided* by 5, the *Sum, Difference, Product,* and *Quotient*, ſhall all be *exactly* equal.

IX. QUESTION 480, by *Miſs* Sally Hill, *of* Gibſide.

A Merchant exchanged 20 *French* Crowns, 12 Dollars, and 10 Ducats, for 10 Guineas, *Engliſh*; next he exchanged 24 *French* Crowns, 16 Dollars, and

12 Ducats, for 13l. then 30 *French* Crowns, 15 Dollars, and 45 Ducats, for 24l. What was the Value of a *French* Crown, a Dollar, and a Ducat?

X. QUESTION 481, *by Mr.* W. Hardy, *Maſter of* Cottingham-*School.*

IF I put out 500l. at 4 *per Cent. compound Intereſt,* and receive, at the End of the 1*ſt Year,* 5l. at the End of the 2*d Year,* 10l. End of the 3*d,* 20l. End of the 4*th,* 40l. *&c.* till I receive all the *Principal* and *Intereſt:* In what Time from the putting out will the Debt be the *greateſt poſſible;* and when will the Principal and Intereſt due be received?

XI. QUESTION 482, *by Mr.* W. Hardy.

A Lady has put a certain Sum of Money (S,) into the Hands of a *Banker,* who agreed to pay her 4 *Times* the *ſimple* Intereſt thereof *every Year,* during her *Life;* but, at her Deceaſe, the Principal (then in his Hands) is to be the *Banker*'s. How long ought the *Lady* to live, that the *Banker* may gain juſt an *hundredth* Part of the Principal, for his Trouble? — *An Example to be given in conſiſtent Numbers.*

XII. QUESTION 483, *by Mr.* Robinſon, *of* Biddick.

A Piece of Clock *Machinery* has 6 Hands, all going round together the *ſame* Way; the Hand, A, goes round in 24 Hours; B, in 22 Hours; C, in 20 Hours; D, in 18 Hours; E, in 16 Hours; and F, in 14 Hours: They all ſet off together at 12 at Noon, on the *Dial-plate,* In what Time will they next be together, or conjoined? — *See* P. 135, Ferguſon's *Tracts of Arts and Sciences; where this Queſtion is propoſed, and very incorrectly anſwered by the Author. Its true Solution will illuſtrate the Uſe of the univerſal Rule, P.* 43, *Pall.* 1767, *and Rules, at P.* 36, *Pall.* 1771, *for anſwering this Sort of Queſtions.*

XIII. QUESTION 484, *by Mr.* Robinſon.

A *concave* Sphere has its Metal 3 Tenths of an Inch *thick:* Required to find out its *Side Diameter,* when the ſaid *Sphere* ſinks to the *Center* in Rain-Water.

XIV. QUESTION 485, *by Mr.* Judſon, *of* Beverly.

REQUIRED the *Logarithm*-Tangent to the *Sexageſimal* of 1 *Sixth;* (reſpecting the Parts of a *Degree)* to 6 Places of *ſignificant* Decimals, excluſive of Cyphers Places.

XV. QUESTION 486, *by Mr.* Edw. Johnſon, *Land-Surveyor, at* Hull.

A bets B 100 Guineas to 10, that, in throwing up 5 Guineas, they ſhall not come up all *Heads,* or *Tails,* once in 5 Trials. *Required* the Advantage, or Diſadvantage, of *each* Party.

XVI. QUESTION 487, *by Mr.* Edward Johnſon.

THE two *Diagonals* of a four-ſided Field are 30 and 40 *Chains,* reſpectively, and the Angles of their *Interſection* 76 *Degrees;* the *ſhorteſt* Diagonal divides its *Area* into two Parts, in Proportion to one another as 2 to 3; and the *longeſt Diagonal* divides it into two other Parts, in Proportion as 1 to 3: *Required* the Sides and Acres it contains, by a *general Method.*

XVII. QUESTION 488, *by Mr.* Edward Johnſon.

THREE Ships, A, B, C, having ſailed from 3 different *Ports,* all lying in the *ſame Latitude,* arrived at the Port P. The *Ship* A having *ſteered* a Courſe betwixt the *North* and *Weſt,* it was found, that the *Sum* of the Diſtances run by A and C was 240 *Leagues;* and the *Sum* of the *Courſes* of A and C, from the *North,* was 80 Degrees; and that the *Diſtance,* run by B, was a *mean Proportional* between the *Diſtances* of the Ports ſailed from by A and B. *Required* the Courſe and Diſtance of each Ship; and alſo the *Diſtance* of the Ports ſailed from, one from another.

XVIII. QUESTION 489, *by Mr.* Edward Johnſon.

REQUIRED the *greateſt Rectangle* that can be inſcribed in the *Sector* of a Circle, whoſe *Radius* is 100, and *Arch-Line* 105.

XIX. QUESTION 490, *by Mr.* Edward Johnſon.

GIVEN the *Hypothenuſe* of a right-angled *Triangle,* and the Side of its *in-*

ſcribed Square, to find the other Parts of the *Triangle* by an *eaſy general* **RULE**, without the Trouble of *extracting* Roots.

XX. QUESTION 491, *by Capt.* Edward Williams, *of the Artillery*, Woolwich.

TO *ſquare* the *Circle*, nearly, by a *ſimple* mechanical *Conſtruction*; for the Uſe of *Mechanics*.

XXI. QUESTION 492, *by Capt.* Williams.

THE *Impetus* of a *Projectile* being given, *required* to determine, by a *general* geometrical *Conſtruction*, the *Time of Flight*, on an inclined *Plane*, at any Degree of Elevation or Depreſſion of the *Piece*; admitting that falling *Bodies* deſcend exactly 16 *Engliſh Feet* in the *firſt Second* of Time.

XXII. QUESTION 493, *by Capt.* Williams.

TO determine, *experimentally*, the Form of the *Curve* deſcribed by a *military Projectile*. —— *Mr.* Emerſon, *in Cor.* 4. *Prop.* 19. *of his* Fluxions, *has ſhewn a* "Method of exhibiting to View the very Curve deſcribed by a Cannon-ball in "Miniature." *But as his Solution depends on ſuppoſing the Reſiſtance of the Air to be as the* Square *of the Velocity, from which it ſeems greatly to differ in many Caſes, by ſome late Experiments, it is therefore the* Deſign *of this Queſtion to aſcertain the* projectile *Curve itſelf by actual* Experiment, *independent of any* Hypotheſis *of* Reſiſtance *whatever. See alſo Mr.* Emerſon's Scholium *to his 19th* Propoſition.

XXIII. QUESTION 494, *by Capt.* Williams.

TO determine the *Latitude* at Sea, by obſerving 3 Altitudes of the *Sun* and the *intermediate* Times, when the Sun is *off* the Meridian, by a *ſimple* Equation.

XXIV. QUESTION 495, *by Lieutenant* Jardine, *of the Artillery*, Woolwich.

THERE is a *rectangular* Field, whoſe *Sides* are 40 and 30 Yards, *required* the Breadth of a *Ditch*, 2 Yards in Depth, bounding the ſame, ſo that the *caſt-out* Earth ſhall raiſe the remaining *Ground* 1 Yard higher. — N. B. *Triangular Fields, Squares, Polygons, Hexagons, &c. to raiſe the Earth a given Height, admit of Anſwers by a ſimilar Method.*

XXV. QUESTION 496, *by Mr.* Alexander Rowe, *of* Reginnis, Cornwall.

THERE is a *Field* in the *Form* of a right-angled *Triangle*, whoſe *Hypothenuſe* is equal to 6 *Chains*, and the *Difference* of the *Sines* of its acute Angles $= \frac{5}{8}$: What is the *Content* of that Field?

XXVI. QUESTION 497, *by Mr.* Rowe.

QUÆ eſt Ellipſis cujus Diametri $= \overline{x^2}|^{4x}$ *et* $\overline{5x}|^{2x}$*: Requiro* minimam *ejus Aream*.

XXVII. QUESTION 498, *by the* Palladium-Author *junior*.

AS *Dido* (the Daughter of *Belus*, King of *Tyre*, her Father being murthered by her Brother *Pigmalion* for his Treaſure) ſailed to a diſtant Port of *Africa*, called *Zeugitana*, with her Treaſure, and purchaſed as much Land there as ſhe could incloſe with a *Bull's Hide*, (cutting it into *ſmall Thongs*,) on which ſhe built the City of *Carthage* and the Caſtle *Burſa*, (ſignifying the *Hide*,) ſo a modern LADY has purchaſed as much Land, from a *Lordſhip*, as ſhe can incloſe with 4 ſtraight *Lines*, or Fences, of 4, 5, 7, and 9, Furlongs in Length: What is the *greateſt* Number of *Acres* ſhe can incloſe, and what will be the *Value* of her *Eſtate* at 25*l per Acre*?

⁂ *Whoever ſends the beſt Anſwer to the following Queſtion, before the Beginning of* April, *has a Chance, by Lot, to win* 12 Palladiums. *Dentur Digniſſimo.*

PRIZE QUESTION, *by a* SEA-OFFICER, non B. D. F. R. S. *ſed* A. A. A.

THERE having been very different *perplexed Methods* propoſed for *determining the Latitude* a Ship is in at *Sea*, when the Sun is *off* the Meridian, and an Obſervation cannot be had but at uncertain Times, by Reaſon of cloudy or hazy Weather, coming near Land, (particularly the *uncertain* and *perplexed* Method borrowed from the *Dutch*, and adopted by Mr. *Maſkelyne*, Aſtronomer-Royal, in the *Nautical Ephemeris*, to the Confuſion of the *Navigator*,) it is therefore *propoſed* to determine the *Latitude* a Ship is in, at Sea, by a *Forenoon*, *Afternoon*, or *Night*, Obſervation, according to the *moſt uſeful*, *correct*, and *practical Method*.

☞ We acknowledge the Receipt of other uſeful or curious Queſtions from ſeveral of our *ingenious* Correſpondents; but, as our Rule is *to ſelect the moſt curious, practical, and uſeful, (beſides new,)* out of the many Queſtions ſent, our Correſpondents will ſee ſome of their Queſtions inſerted and ſome omitted, ſince Room cannot be found for all. — Mr. *Edward Johnſon*, of *Hull*, formerly a Teacher of the *Sciences*, but now a *Land-Surveyor*, verſed in all Parts of the Mathematics, has favoured us with *eaſy, general,* and *elegant,* Conſtructions (beſides curious *analytical* Solutions) to the Queſtions inſerted in his *Name*, and others we had not Room for this Year. — Capt. *Edward Williams* and Lieut. *Jardine*, both of the Artillery, at *Woolwich*, have ſent us *Solutions* and *Conſtructions* (which we reſerve) to the Queſtions inſerted in their Names.

Capt. *Williams* has ſent us *the following Solution to the following Obſervations, taken by him, at Sea, on Board the* Sybilla *Ordnance-Tranſport*, June 23, 1772.

At 8h 54m ⎫ ☉'s Alt. ⎧ 48° 42' = 1ſt Alt. ⎫ Compts ⎧ 41° 18' ⎫ Sum = 75° 30' ⎫
9 46 ⎭ correct. ⎩ 55 48 = 2d Alt. ⎭ ⎩ 34 12 ⎭ 2A = 11 56 ⎭
*Fr. Operation below.**

Sum = 87° 26' ⎫ Comp. 2d Alt. 34° 12' ⎧ Sum = 46° 8' ⎫ Dif. 4° 50'
½ Sum = 43 43 = S ⎭ 2A = 11 56 ⎩ Coſ. 1. Alt. 41 18 ⎭ ½ Df. 2 25 = D.

Logs.

Coſ. Decln 23° 29' . . 9.9624527
Sine ½ Time 6 30 . . 9.0538588

Sine Arc A = 5 58 . . 9.0163115
* 2A = 11 56

Tang. ½ Time 9.0566595
Sine Declin. . . 9.6004090

Cot. Arc B = 87° 24' . . 8.6570685

Sine S . . 9.8395363
D . . 8.6249653
Co. Ar. ⎧ Sine 2A . . 0.6845053
⎩ 2d Alt. Co . . 0.2501993

2)19.3992062

Coſ. Arc C = 59° 57' . . 9.6996031

2C = 119° 54'
B = 87 24

Coſ. Dif. 32 30 . . . . . 9.9260292
Cot. 2d Alt. . . 9.8322529

Tan. Arc E = 29° 49' . . 9.7582821

Coſ. Declin. 66 31
E = 29 49

Coſ. Dif. = 36 42 . . 9.9040529
Sine 2d Alt. . . 9.9175478
Coſ. E . . Co. Ar. . . 0.0616700

Sine Lat. = 49° 51' . . 9.8832707

True Lat 49.49.28 [illegible]

Note. The *Haze* clearing up, about 10h 34m, we made the *Start* Point, bearing N. N. E. and thereby confirmed the *Latitude* determined by the foregoing Obſervation. Theſe are all the Figures neceſſary to make this *eaſy Computation*; whereas the *indirect Method* [in the *Naut. Ephem.*] requires a more *tedious Operation*; and, after all, produces only an *uncertain Reſult*; ſo that it is *ſurpriſing* how any Judge of the Subject could adopt one Method and reject the other.

EDWARD WILLIAMS.

Remark by the Palladium-Author. The indirect and erroneous *Method* of determining the ſame (adopted by Mr. *Maſkelyne*) was borrowed from a *Dutch* Pretender to Calculation, *(Cornelis Dowes of Amſterdam,)* firſt *quacked* upon the Public by Mr. *Harriſon* of *Whitehaven*, by the Title of *Solar Tables*; then adopted, with ſome trifling Alterations, by Mr. *Maſkelyne* in the *Nautical Ephemeris*, and, laſtly, freſh imported from *America*, with Things true, mixed with Things inconſiſtent, by *N. D. Falck*, a freſh Advocate for Error, in a *Quarto Pamphlet*, intitled the *Ready Obſervator*, or an *infallible Method* for determining the *Latitude at Sea*, by Altitudes of the Sun, at any Time [*viz. any one Time*] of the Day, either *Forenoon*, or *Afternoon*, independent of a meridional Obſervation; (ſo fond are ſome of following a new *Track*, whitherſoever it leads.)

But